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CONTENTS

ECONOMIC POLICY, ORGANIZATION, AND MANAGEMENT

Matyukha on Statistical Analysis of Product Quality (I. Matyukha; VESTNIK STATISTIKI, Feb 80)............. 1

Unified Legal Code for USSR Economic Management Advocated (V. Laptev; SOTSIALISTICHESKAYA INDUSTRIYA, 21 Feb 80).. 12

PLANNING AND PLAN IMPLEMENTATION

New Technical-Economic Norms Approved by Gosplan (EKONOMICHESKAYA GAZETA, Mar 80)........................ 16

UTILIZATION OF RESOURCES AND SUPPLY

End To Supply Contract Violations Urged (EKONOMICHESKAYA GAZETA, Feb 80)........................ 42

INTRODUCTION OF NEW TECHNOLOGY

Problems, Impact of Scientific-Technical Research, Development Examined (PLANOVOYE KHOZYAYSTVO, Feb 80)......................... 47

- Promising Scientific Advances Reviewed, by Yu. Bokserman
- Joint Gosplan-Academy of Sciences Session, by B. Krasnoglazov

Economic Incentives for Technical Progress Outlined (S. Pirogov; EKONOMICHESKIYE NAUKI, Feb 80)........... 59

ECONOMIC POLICY, ORGANIZATION, AND MANAGEMENT

MATYUKHA ON STATISTICAL ANALYSIS OF PRODUCT QUALITY

Moscow VESTNIK STATISTIKI in Russian No 2, Feb 80 pp 31-39

[Article by I. Matyukha, Moscow: "Statistical Study of Product Quality and of the Quality of Performance in Sectors of the Economy"]

[Text] Improvement of product quality and of the quality of performance in the national economy is one of the most important socioeconomic problems and one of the decisive factors in raising the level of efficiency of social production and lifting the prosperity of the people.

It is well known, for example, that improvement of the quality of machines--their capacity, output, service life and other characteristics--is a most important condition for increasing the production of physical goods and for improvement of their quality. More-perfect and better-quality equipment, just like the new equipment, numerous durable goods and housewares, footwear, clothing and other goods produced with it, serve man longer in the production process or personal consumption, signifying thereby a saving on social labor. In this connection we cannot but emphasize the great importance of high quality of consumer goods to development of man's esthetic tastes and to creation of comfort in the organization of his everyday life.

Improvement of product quality and the quality of performance is ultimately characterized by the efficiency with which labor, material and financial resources are used in the country's national economy and signifies fuller satisfaction of the material and cultural needs of the population.

Improvement of product quality and the quality of performance is one of the most important components of the party's economic strategy under the conditions of advanced socialist society and one of the principal tasks and peculiarities of the 10th Five-Year Plan--the 5-year plan of efficiency and quality. The 25th CPSU Congress set the task: "Decisive improvement of the quality of all types of products produced, expansion of the assortment, increased output of new products meeting present-day requirements. A larger proportion of products in the superior-quality category in the total volume of output. Broader introduction of comprehensive product quality control systems."*

The comprehensive package of measures envisaged by the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Effect of the Economic Mechanism on Production Efficiency and the Quality of Performance" is aimed at speeding up performance of the task of a further rise of efficiency in the national economy. One of the measures it contains is further improvement of planning as a most important area in improving management of the country's economy.

The decree points up the need to deepen the scientific foundation of plans, to select the most efficient ways of attaining high final results for the national economy, to combine sectoral and regional development optimally, to improve intersector and intrasector proportions and to ensure balanced economic growth. Provision is also made to improve the system of indicators of plans in order to guarantee that they have a decisive impact on results in the national economy: efficiency, product quality and performance. The role of qualitative indicators of the performance of associations, enterprises and ministries is considerably enhanced with respect to performance of mutual obligations to deliver products according to specification and also to increase the volume of production of products in the superior-quality category or other indicators of quality assigned to the given sector or industry.

Performance of the tasks set by the Communist Party of an all-out effort to improve product quality and the quality of performance requires that a broad range of measures be carried out in all sectors of the economy so as to guarantee a faster rate of scientific-technical progress, improvement of the structure and organization of production and a further improvement of product quality control. The state statistics service, whose responsibility it is to regularly furnish the national economy information on fulfillment of state plans for the country's economic and social development, on accomplishment of the program of scientific-technical progress and on improvement of product quality, as one of its most important results, has a large role to play in performing this exceedingly important task of the national economy.

In the 4 years of the 10th Five-Year Plan which have passed statistical agencies have done a great deal of work to further improve the system of indicators of product quality, to expand the group of indicators in that system, to improve the statistical reporting of enterprises and organizations containing quality indicators and to adopt supplemental statistical reporting, and to draft specific programs for organizing sample surveys and status reports. Considerable work has been done on economic analysis of statistical information on product quality.

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* "Materialy XXV s"yezda KPSS" [Materials of the 25th CPSU Congress], Moscow, 1977, p 168.

In their work to improve the methodology of statistical study of product quality state statistical agencies are guided by a number of fundamental documents regulating indicators of product quality in the national economy. The principal of them are documents that make up the system of quality standards: USSR State Standards (GOST), sectorwide and industrywide standards (OST), republic standards (RST) and standards of associations and enterprises (STP). Quality is also regulated by technical specifications which the products produced must meet.

Standards set forth the list of conditions and characteristics which the products must satisfy: indicators of the technical level of the product, its service life, reliability, efficiency of its use, and so on. By the outset of the 10th Five-Year Plan there were more than 20,000 GOST in effect in the country covering the most important types of industrial and agricultural products, 16,000 OST, 6,000 RST and also more than 100,000 technical specifications on products produced.

GOST are regularly updated and revised to take into account the most recent scientific and technical advances. It is sufficient to say that in the years of the Ninth Five-Year Plan alone about 5,000 current standards were revised and more than 6,000 new ones drafted to embody higher requirements concerning the technical level and quality of products produced. In the years of the 10th Five-Year Plan important tasks are being performed in the field of adoption of standards. The decisions of the 25th CPSU Congress emphasize the important role of standards in speeding up scientific-technical progress and improving the quality of finished goods, raw materials, supplies and components.

In the context of socialist economic integration and the all-out effort to develop international specialization and industrial cooperation great importance is attributed to drafting product standards in the framework of CEMA. Enforcement of existing product standards and the drafting of new ones constitute one of the conditions for closer coordination of the efforts of the socialist countries in performing the tasks of scientific-technical progress.

In devising reporting forms and drafting the programs of special-purpose surveys and status reports statistical agencies are also guided by regulations on product quality certification, which provide for assignment of the product to one of three quality categories: superior, first and second.

Products meeting standards or technical specifications whose indicators equal or exceed the best Soviet and world exemplars go into the superior-quality category. These products are awarded the state Quality Emblem. Products which meet present-day technical-and-economic criteria and satisfy the needs of the national economy are put in the first-quality category. But products which do not meet those requirements and are in essence obsolescent and in need of modernization or withdrawal from production go into the second-quality category. In studying product quality statistical agencies are also guided by the grading criteria used in a number of industries and agriculture as well as by a number of other quality indices.

Two directions can be distinguished in the statistical study of quality. Product quality is being studied in the industrial sector, agriculture, capital construction and other branches of physical production. At the same time, in the sectors of the economy statistical studies are being made of the quality of performance. In spite of certain differences between these lines of research in development of their methods of recording and reporting, in the drafting of their programs for sample surveys and status reports, etc., their results nevertheless complement one another and together comprise a body of statistical information that makes it possible to describe quality as the result of interaction of a number of socioeconomic factors.

Quality of performance--be it the state of production planning, the actual organization of the production process, the level of personnel training, worktime use, or finally, the quality of supervision of the production collective--ultimately predetermines product quality and production efficiency. The need arises to expand in every way the comprehensive statistical study of quality on the basis of statistical and accounting reports as well as specific sample surveys and status reports. It would be worthwhile to expand the set of statistical indicators of the quality of performance in the sectors of the economy so as to take into account the specific nature of the organization of production. There is a particular need for broad treatment of the question of statistical study of the quality of performance of production collectives and of the organization of socialist competition in them and a need to develop a specific system of economic-statistical indicators for this purpose. This task follows directly from the decree of the CPSU Central Committee and USSR Council of Ministers on further improvement of the economic mechanism, in which emphasis is put on the importance of drafting special-purpose comprehensive scientific-technical, economic and social programs as components of multiannual state plans for economic and social development.

We should note that certain scientific work to shape a system of indicators of quality of performance and to furnish their methodological foundation is being done on an ongoing basis by the USSR Central Statistical Administration [TsSU] and by its scientific research institutes. At the end of 1979 the Scientific Methodology Council of USSR TsSU examined draft proposals for statistical evaluation of the quality of performance prepared by its own research institutes. The draft proposals supplied a list of indicators to characterize the quality of planning and the quality of results of production and economic operation at the level of industrial enterprises and associations. By and large the recommendations were approved as drafted, and the research institutes of USSR TsSU are now adding the finishing touches to them so as to take into account the criticisms and recommendations that were made.

In performing the measures that follow for state statistical agencies from the decisions of the 25th CPSU Congress and subsequent plenums of the CPSU Central Committee, USSR TsSU is making a constant effort to improve the system of indicators and to study product quality and the quality of performance in the sectors of the economy.

One of the leading places in this effort belongs to the statistics of technical progress, since the indicators of this field of statistics are expected to provide economic-statistical analysis of improvement of the instruments and subjects of labor and of development of manufacturing processes and the forms of organization of work and production, i.e., exceedingly important factors to changing the efficiency of social production and raising the quality of performance in all parts of the national economy.

The statistics of technical progress studies the quality of performance of sector- and industrywide scientific research, project planning and design, and production engineering organizations on the basis of current and annual reports and periodic status reports, analyzing indicators of their fulfillment of topic plans; assignments to solve various scientific-technical problems; and research and development projects. An analysis is also made from the reports of these organizations of the proportion of research topics performed at the level of inventions and of topics worked on which have been applied to production. In order to evaluate the economic efficiency of the topics worked on and applied to production, an analysis is made of the average length of the "research--development--application" cycle and also of the newness, importance to the national economy and patentability of scientific research projects.

Much attention is paid in the statistics of technical progress to studying the renewal of products, organization of the production of new models of machines, equipment, appliances, instruments and articles and withdrawal of outdated models from production. In this connection data are processed and analyzed on technical-and-economic advantages and the quality category of new designs, of new models of machines, equipment, appliances and instruments created for the first time in the USSR.

In just the first 3 years of the 10th Five-Year Plan more than 5,500 outdated designs of machines, equipment, appliances, instruments and articles were withdrawn from production. In that period more than 11,000 prototypes of new models of machines, equipment, appliances and instruments were created. Production was organized and series manufacture initiated of 8,100 designations of new models of machines, equipment, appliances and instruments. For the industrial sector as a whole production was organized and series manufacture initiated of 10,300 designations of new types of industrial products.

The quality of performance in the various sectors of the economy is analyzed on the basis of statistical data reflecting the level of mechanization of certain forms of laborious and heavy work, of the utilization of machines, equipment and mechanized and automatic lines, and also of modernization of production equipment. In the construction sector, so as to take into account certain of its specific features, indicators of the mechanization of principal types of work and of utilization of construction equipment, indicators of application of progressive construction methods, of application of economically advantageous and efficient materials, fabrications and articles, and also of application of advanced technological processes to construction are used in analyzing the quality of performance.

The statistics of technical progress gathers data on the existence of computerized management systems (ASU), designed for the gathering, processing, storing and transmission of economic-statistical and technical data indispensable to planning and management in various units of the national economy. The materials gathered make it possible to describe to some degree the economic efficiency with which ASU's are operating in various ministries and departments of the country.

Materials on invention and the efforts of production innovators in the country, which reflect the broad participation of the workers in technical progress and improvement of production, have great importance in the statistics of technical progress. In 1978 alone there were more than 4.5 million inventors and production innovators in the country, and they furnished more than 5 million proposals, 79 percent of which were applied. The total saving from adoption of these inventions and innovative proposals in the national economy has been about 6 billion rubles per year.

In the statistics of the industrial sector product quality is analyzed on the basis of current reporting, which makes it possible to describe the ratio of certified to uncertified products. Certified products are in turn analyzed with respect to the three quality categories: superior, first and second.

Statistical reporting furnishes a description of progress in fulfilling plan assignments established concerning the ratio of products in the superior-quality category to the total volume of marketed output. As noted above, products in the superior category are awarded the state Quality Emblem. Their share in the total volume of output is growing steadily. At the beginning of 1979 the state Quality Emblem had been awarded to 62,400 product designations.

An analysis of the production and quality of consumer goods and of the renewal and improvement of their assortment is one of the most important tasks of industrial statistics. In light industry, the food industry and certain other industries the quality of products produced is also analyzed by grades. Report data indicate a regular increase in the ratio of products in the superior grade to total output, which is a factor of great importance to production efficiency and to fuller satisfaction of the needs of the public for material goods.

Statistical information on the number of claims manufacturing enterprises receive against the products they produce is used extensively in analyzing product quality. The statistics of customer claims reflects the output which does not meet state standards, samples, technical specifications and other conditions. Figures on customer claims are an important source of information in analyzing the reasons why products of low quality are produced and in drafting specific measures to improve the organization of production and to ensure high quality of industrial products.

Statistical study of prodution rejects and related losses is closely related to the question of product quality. Like the data on customer claims, statistical materials on rejects are an important source of information used to improve production and the quality of performance.

Study of product quality and the quality of performance has been broadly organized in agricultural statistics. Product quality in plant growing is analyzed with respect to a number of indicators, among which indicators of the moisture content of grain crops, weed content and infection with various diseases have great importance. Grain crops and industrial crops are also characterized by indicators of grade and type, which are predetermined by the physical, chemical, processing and other use characteristics. For instance, several dozen winter and spring varieties of wheat distinguished by a number of characteristics are regionalized in the country. Wheat is in turn subdivided into types--soft, hard and vigorous (sil'naya), which are distinguished by the protein content in the grain and by other characteristics. Or, for example, raw cotton is classified in two types: medium-fine and fine fiber, which are in turn subdivided into a number of grades depending on certain characteristics.

Product quality in plant growing is also characterized by indicators of the oil content in oilseed, of sugar in sugar beets, and so on.

The quality of the products of animal husbandry is analyzed with a number of indicators, among which we must specifically mention indicators of butterfat content of milk and degree of fatness of livestock. Statistical data are gathered and analyzed concerning the quality of certain types of raw materials furnished by animal husbandry, for example, wool by types--fine, semifine, coarse and semicoarse, etc.

We should emphasize that agricultural statistics provide abundant data reflecting the quality of performance in this sector of the economy. It is sufficient to mention only the indicators of the average yield of certain agricultural crops, the productivity of livestock (average figures on milk production per dairy cow, average daily weight gain per head of livestock in fattening, fleece weight per sheep), the qualitative composition and utilization of breeding animals, the composition of feeds and the share they contain of feed products with high protein content. Figures on dates of fulfillment of various farm operations--planting, harvesting and autumn plowing have great importance in analyzing the quality of agricultural production and its efficiency. As we know, the optimum dates of these operations have great importance in achieving a high level of production efficiency.

The statistics of product quality and the quality of performance in capital construction is expanding and becoming more thorough. On the basis of certificates of acceptance of state commissions allowing operation of completed projects for productive and nonproductive use, the quality of construction of these projects is analyzed in terms of the evaluation given them: excellent, good or satisfactory. Certificates allowing projects to go into operation with certain deficiencies are used to analyze their volume.

Much attention is paid to the quality of construction of housing and cultural- and consumer-service facilities. The quality of housing opened to occupancy is characterized by the floor layout of dwellings built from the new and improved standard designs and by the equipping of housing with central heat, hot water, running water and other types of household conveniences.

To analyze the quality of performance in construction extensive use is made of [illegible] on the composition of capital investments, especially in order to characterize that part which is assigned to construction of facilities which ensure a faster rate of scientific-technical progress in all sectors of the national economy, and also to reconstruction and retooling of existing enterprises. The quality of performance is also characterized by indicators on construction time and the volume of unfinished construction. Materials on organization of the production process, on use of manpower and overall mechanization of the construction process, on introduction of new forms of cost accounting, on job subcontracting by construction crews, etc., have great importance in the statistical study and analysis of the efficiency and quality of construction.

A sizable number of projects related to the study of quality are constantly being done in the field of the statistics of material and technical supply and censuses. This work is important because of the significance of the system of material and technical supply in linking production and consumption of products in the national economy and in its sectors. Data are gathered and analyzed on the quality of products delivered, for example: ore with respect to grade and chemical composition; rolled products with respect to assortment; manufactured fertilizers with respect to types and the content of nutrients; coal with respect to grades and mining basins, and so on.

The quality of performance of enterprises in utilizing various material resources is studied by means of data reflecting the specific rates of consumption of these resources and also fulfillment of standards and assignments for the average reduction of rates of consumption of fuel, thermal energy, electric power and the most important types of raw materials and supplies in the production process. The quality of performance of supply and sales organizations is analyzed with respect to the indicator most important for them concerning delivery of products under contracts concluded between producers of a product and its consumers. Analyses are also made of aspects of development of direct long-term business relations between consumers of products and their suppliers, as one of the basic forms of improving material and technical supply in the country, as well as of product sales through wholesale trade ensuring optimum conditions in the supply of materials and articles to consumers in accordance with their orders through regional sales organizations.

Research is done on the quality of performance in the field of the statistics of transportation and communications. Broad studies and analyses are made of the quality of performance of trucks on the basis of the materials of regular statistical reports (distance traveled loaded and empty, degree of loading, waiting time for loading and unloading, idletime, etc.) in the sectors of the economy. Figures on progressive forms of shipment in the transportation sector are analyzed.

Analysis of statistical materials on quality of performance in environmental protection has undergone considerable development. Data are gathered first of all to analyze performance of a range of measures pertaining to rational utilization and preservation of land, water and timber resources, to reduction of harmful emissions into the atmosphere, to trapping harmful substances and rendering them harmless, and so on.

Product quality and the quality of performance are one of the most important aspects of the statistics of the material and cultural level of living of the population. Trade statistics studies the quality of foodstuffs and nonfood commodities reaching trade organizations and the quality of performance of those organizations. A broad study is made of the quality of consumer services to the public by means of the existing regular reports on operation of consumer-service enterprises and organizations and sample public opinion surveys concerning the quality of consumer services.

Extremely close attention is paid to analysis of the qualitative composition of labor resources: the number of workers and employees by education and length of service (workers by occupations and wage categories) and the composition of specialists with higher and secondary education employed in the national economy. An ongoing study is made of the questions of worktime use and movement of manpower in the national economy.

The statistics of culture analyzes above all the quality of training of scientists, their number in the national economy and their distribution with respect to academic degrees, academic titles, specialties and other criteria. Various aspects of the quality of performance of scientific institutions are studied by analyzing data on fulfillment of plans of scientific research projects and application of scientific developments to production. Information is also gathered on the quality of performance of cultural and educational institutions and on use of the services of those institutions by different social groups in the population.

We should finally emphasize the great effort to analyze a number of summary indicators of product quality and the quality of performance in the national economy which is made in the statistics of finance and prices. This is pursued by studying and analyzing aspects of economic incentives to encourage the production of better-quality products related to the setting of prices and formation of economic incentive funds on the basis of indicators reflecting the size of premiums on products in the superior category or products of improved quality and products whose use yields the national economy a high economic benefit, the size of deductions applied to prices of products in the second-quality category, and--in the case of consumer goods--to products for which the demand of the public is limited.

Statistical data characterizing the impact of the quality of industrial products on the level of profitability are analyzed.

Study of losses from the production of poor-quality products in various stages of their movement from the producer to the consumer occupies an important place in analysis of data on product quality. This is pursued by studying figures on losses occurring as a result of rejects, the remaking of rejects, substandard performance of work, improper conditions for product storage and transport, etc.

The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Production Efficiency and the Quality of Performance" outlined a set of measures which strengthened the orientation of production toward improvement of quality. These measures include a further improvement of the planning of the quality of products produced, of product certification, of the setting of standards on new products and their expert evaluation, as well as improvement of the system of economic and material incentives. In the 11th Five-Year Plan associations and enterprises increasing the output of highly efficient new products will be given higher rates for forming economic incentive funds. Incentive premiums are applied to wholesale prices on highly efficient new products whose parameters meet the best domestic and foreign standards. Measures are at the same time planned for withdrawing outdated products from production, and discounts applied to wholesale prices in the amount of 50 percent of the total amount of profit obtained from their sale will be introduced on products manufactured which are in the second-quality category.

The measures envisaged by the decree to improve the economic mechanism are specifically aimed at successful development of the production of consumer goods at expansion of their assortment and their constant renewal. Producers will bear greater responsibility for the quality of goods. In particular, on violations of contractual obligations related to consumer goods and children's goods the proportion of the penalties for underdelivery will be higher than for other goods.

In the light of the decree of the CPSU Central Committee and USSR Council of Ministers on further improvement of the economic mechanism, the state statistical service faces important and crucial new tasks. First of all USSR TsSU, in agreement with USSR Gosplan, has been ordered to make the changes in state statistical reporting that follow from the decree, and the USSR Ministry of Finance and USSR TsSU have been ordered to make the changes in bookkeeping and reporting, envisaging at the same time a further reduction and simplification of recordkeeping and reporting by enterprises, associations, ministries and departments.

In carrying out this order the USSR TsSU and its scientific research institutes have concentrated their efforts on further improvement of the system of statistical indicators. Improvement of the system of indicators also presupposes adoption of a number of new indicators in that system, among which an important place is given to indicators of product quality and the quality of performance. Methods of economic analysis of statistical information under the conditions of further development of the economic mechanism and its greater impact on raising production efficiency and the quality of performance are being improved at the same time. Particularly great attention should be paid to improving the methods of comprehensive analysis, which makes it possible to reveal the influence of various socioeconomic factors on product quality and the quality of performance and to discover unutilized potential. It is also important to discover the influence of decisive factors related not only to the technical-and-economic aspect of production and its management (quality of initial raw materials and supplies, the supply of equipment and production technology, etc.), but also to the social development of the collective (personnel training, cultural and consumer services, remuneration, etc.).

Considerable work is being done to improve the programs of facilities for electronic data processing so as to take into account the new economic-statistical indicators envisaged by the decree. Methods are being developed for comprehensive analysis of statistical information, especially materials on product quality and the quality of performance. Timely and competent performance of all these measures will make it possible to raise the level of statistical work.

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

UNIFIED LEGAL CODE FOR USSR ECONOMIC MANAGEMENT ADVOCATED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 21 Feb 80 p 2

[Article by V. Laptev, corresponding member, USSR Academy of Sciences, Moscow: "A Systematic Code of Management:]

[Text] "In each sector of the national economy thousands of different orders and instructions are in operation," Comrade L.I. Brezhnev said in a speech at a meeting with the voters of Moscow's Baumanskiy Election District in 1974. "Try to figure them out. This is all the more true since many of these instructions have become obsolete or contain unjustifiable restrictions, petty regulations. This stifles initiative and contradicts the new requirements which are now being made on the economy." These defects were subsequently noted in a decree of the CPSU Central Committee and the USSR Council of Ministers "On Measures for the Further Improvement of Economic Legislation." In recent years, much has been done to rectify the situation. Work has been carried out in ministries and departments on putting "small legislation" into order. Collections and lists of operative normative orders and instructions were issued there. Many obsolete documents have been found and annulled. In some industries, legal means of improving operational activity are being used.

But is it possible to solve problems relating to improvement of legislation by means of such departmental creation of norms? Of course, not. In principle, economic relations should be regulated uniformally for all ministries and departments through laws or decrees of the government. At the head of this hierarchical pyramid of normative acts, there should be, in my opinion, a USSR economic code. Why is it required?

The volume of economic legislation has become swollen. For example, the collection on capital construction alone consists of 10 volumes. Even an experienced student of law would find it difficult to use such a voluminous and actually boundless legislation. The economic code would seriously help eliminate this cumbersomeness.

But the gist of the matter does not rest solely in this. With an excessively swollen volume of legislation, there inevitably arise contradictions between norms of economic law. For example, the Statute on the Production Association provides that ministries plan the work of associations while taking into account or while not taking into account internal turnover. But an instruction of Gosplan, the USSR Central Statistical Administration and the Ministry of Finance of 10 March 1976 forbids taking internal turnover into account. The result is that two normative acts contradicting each other are simultaneously in operation. Such absence of coordination reduces the effectiveness of legal norms and undermines their authority in the eyes of operational executives. The functioning of the economic mechanism is interfered with: how is it possible to plan correctly while taking into account or while not taking into account internal turnover?

An economic code in which it would be possible to unify legislation could help solve many problems. Reference is made to the development of uniform solutions and a single legal regulation of operational relations that are identical in their nature in all sectors of the economy. Many defects in the management of production are connected with the absence of such legal standards. But the latter must be in prepared form as typical models and be used in operational practice. Here nothing new need be thought up. Some "models" have already been developed. For example, the Statute on the Scientific-Production Association is spreading not just in industry but also in other sectors of the national economy. Unified regulation of basic questions of the organization and operation of these associations is provided, which does not exclude consideration of sectorial specifics.

But such general regulation does not exist in regard to production associations. They are operative in industry and agriculture and are being developed in construction and other sectors of the economy. At the same time, their legal position is regulated by different normative acts in which unjustified differences are found, while what is needed is the issue of a single statute for all production associations that provides for sectorial special conditions.

General normative regulation exists far from everywhere. Various departmental instructions appear. They frequently and unjustifiably limit the rights of subordinate operational units. Departmental normative acts gradually become obsolete, accumulate and become confusing.

Of course, a code is not a panacea; it just opens the "door" to a radical renovation of economic legislation. It will require in addition the working out of detailed normative acts for the basic directions of improvement of planning and economic stimulation, control of scientific-technical progress, material-technical supply, financing and credit extension. At the same time, it will be necessary to solve a number of new questions. Particularly those pertaining to operational ministries.

Self-support methods are now being introduced at the sectorial level of operation. But so far there are no signs that this will be reflected in legislation. It is true we have a General Statute on Ministries. It applies to all ministries--operational, guiding administrative-political and social-cultural. Self support understandably cannot be applied to all, but only to operational ministries. The manner of their work on self-supporting principles must be precisely defined in legislation. There should be issued for this purpose a General Statute on Operational Ministries, concretely establishing their functions, rights and obligations under the new conditions.

Significant defects are also to be found in the sphere of economic sanctions for the violation of contractual obligations. These important levers for regulating economic relations are fragmented; no unified and clearly formulated criteria exist for their application. At the same time, a unified approach is especially necessary here. Otherwise you get what is happening, for example, in relations between industry and transport. An industrial enterprise, in the case of paying penalties for the fault of another, therefore may seek to recover them from the latter. But it cannot do so from a railroad. That is, there exists an unequal responsibility for one and the same violations. This contradicts self-support principles. An important step toward the elimination of such a situation has already been taken: a decree of the CPSU Central Committee and the USSR Council of Ministers on improvement of the economic mechanism points out the need for raising the material responsibility of transport organizations for nonfulfillment of plans for hauling of freight.

It would be proper to increase the accountability of energy supplying enterprises.

Of course, it is not just a matter of penalties. The development of cost accounting is impossible without increasing the role of economic contracts. But legislation concerning them seriously lags behind the requirements of practice. The norms concerning these contracts still come under civil legislation. But to the extent that it includes only that what is common, what is to be found in them and in the everyday transactions of citizens, economic contractual relations are not sufficiently regulated there. For example, the most important and characteristic feature of an economic contract in the socialist economy is its use as an instrument of planning. This aspect is completely absent in civil legislation. The economic contract is coordinated in it not with the plan but with the property relations of citizens, which leads to a rupture in the legal regulation of economic relations both in horizontal and vertical terms.

Another argument in favor of an economic code. It is emphasized in the USSR Constitution that the socialist economy is composed of a single national-economic complex, encompassing all parts of public production, distribution and exchange. Both enterprises and associations and also organs of economic management are included in this complex. The economic code provides the possibility of encompassing within a single legal regulation the relations existing between them. As for concretization, it is to be found in special normative acts.

How is the economic code to be seen? As the title normative act of the section of legislation on the national economy in the Code of USSR Laws. It will thus be the core of all economic law. Then there will be an orderly system of normative acts, all elements of which will be strictly coordinated.

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PLANNING AND PLAN IMPLEMENTATION

NEW TECHNICAL-ECONOMIC NORMS APPROVED BY GOSPLAN

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[Article: "The System of Norms and Standards "]

[Text] Recently Gosplan USSR, in accordance with the 12 July 1979 Decree of the CC CPSU and the USSR Council of Ministers on "Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and the Quality of Work," approved a system of progressive technical and economic norms and standards for types of work and expenditures (economies) of labor, raw materials, materials, and fuel and energy resources, standards for the use of production capacities and specific capital investments, and norms and normatives for defining the need for equipment and cable products (the procedure of working them out and approving them).

I. General Regulations

I.1.The system of progressive technical and economic norms and standards for types of work and expenditures (economies) of labor, raw materials, materials, and fuel and energy resources, normatives for the use of production capacities and specific capital investments, and norms and standards for determining the need for equipment and cable products (henceforth called the System of Norms and standards) is being created in accordance with the 12 July 1979 Decree No. 695 of the CC CPSU and USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and the Quality of Work" as the first stage of a uniform system of scientifically substantiated technical and economic norms and standards for planning the economic and social development of the USSR.

1. 2. A Uniform system of norms and standards is a complex of scientifically substantiated labor, material, and financial norms and normatives, and the procedure and methods for forming, renewing, and using them in the development of long-term and current plans and also of organizing the

preparation and control of norms and standards at all levels of planning with the use of electronic computers.

I.3. The purpose for creating the System of Norms and Standards is to strengthen the scientific substantiation, proportionality and balance of plans, to achieve a deeper disclosure and use of production reserves, and to further increase production efficiency.

I. 4. The System of Norms and Standards is organized on the basis of the following principles:

ensuring the methodological unity at planning levels of the formation of norms and normatives which are used in developing the annual, five-year, and long-term plans;

ensuring the progressive nature of norms and normatives on a basis of maximum reflection in them of planned achievements of scientific and technological progress and advanced methods of production and labor organization and the use of these norms and normatives as a means of introducing scientific and technical achievements;

the overall formation of a normative base for all of the sections of plans (production, material balances and distribution plans, labor and cadres, capital investments, and other sections);

the systematic renewal of norms and standards on the basis of reflecting the factors of scientific and technological progress and the advanced methods of production and labor organization;

ensuring the comparability of the norms and standards which are formed at the various planning levels by means of their aggregation and deaggregation, and also their interconnections;

the automation of the formation and use of the norms and standards of the system on the basis of an automated system of collecting, accumulating, and renewing the norms and standards (ASN) as an inseparable part of the automated planning claculations system (ASPR), of branch automated planning and management systems (OASU), and automated associations and enterprise management systems (ASUP) which ensures the unity of the normative base.

I. 5. The System of Norms and Standards establishes a procedure for the formation and approval of the norms and standards which is defined for each type of norm and standard specified in point I. 1.

The methods of computing the norms and standards are defined by the methodological documentation which is developed and approved in the established procedure.

I. 6. The preparation of the normative base is performed before the beginning of the development of the economic and social development plans and, in accordance with this, the norms and standards are presented to Gosplan USSR by the USSR ministries and departments and Gosplans of the union republics as a rule, on the following dates:

for the basic directions of the economic and social development of the USSR for ten years (by five-year plans) -- two years before the next five-year plan;

for the drafts of the five-year plans for economic and social development -- one year before the next five-year plan;

for the annual plans for the economic and social development of the USSR -- eight to nine months before the beginning of the planning year.

I. 7. The formation of the normative base for the basic directions of the economic and social development of the USSR for ten years is performed with regard to forecasts of the development of science and technology in the branches of the economy and industry and to the overall program for scientific and technological progress for twenty years (by five-year plans) in which economy and specific resource expenditure indicators and the measures to ensure their attainment have to be defined.

For the drafts of the five-year plans for economic and social development the normative base is prepared on the basis of the indicators of the overall program for scientific and technological progress for the first five-year period and of the basic directions of economic and social development for ten years.

The formation of the norms and standards for the annual plans is carried out on the basis of the corresponding indicators which have been adopted in the five-year plan by years.

At enterprises and associations the standard base has to be refined in accordance with the measures of the technical development and production organization plan for five-year and annual periods.

The following are the most important of the basic groups of factors which are considered in calculating or refining the norms and standards:

a rise in the technical level of production;

an improvement of the organization of production and labor;

an improvement of the quality of output;

a change in the structure and volume of the output produced.

The formation of the norms and standards have to be carried out on the basis of economic and engineering calculations, preventing their determination solely on the basis of developed dynamics.

I. 8. The development of the System of Norms and Standards,, including an expansion of the group of norms and normatives, the development of the methodological problems of norm setting, and an improvement of the organization and technology of preparing norms and standards, is carried out by stages.

At the first stage the present System of Norms and Standards is realized as the first stage of a uniform system of scientifically substantiated technical and economic norms and standards for planning the economic and social development of the USSR. The norms and standards in the System are consistently added to, with the formation of the following groups of norms and standards in mind:

1. Social production efficiency standards	Gosplan USSR
2. Labor and wage expenditure norms and standards	USSR State Committee for Labor, All-Union Central Council of Trade Unions, Gosplan USSR, Gostroy USSR
3. Norms and standards: for the expenditure and for stocks of raw materials, materials, fuel, and energy	Gosplan USSR, Gossnab USSR, Gostroy USSR
4. Norms and standards for the use of production capacities and time norms for the mastery of planned capacities	Gosplan USSR
5. Capital investment and capital construction standards	Gosplan USSR, Gostroy USSR
6. Norms and standards for the need for and of stocks of equipment and cable products and equipment use indicators	Gosplan USSR, Gossnab USSR
7. Financial norms and standards	USSR Ministry of Finance, Gosplan USSR
8. Norms for monetary (overall) expenditures for production (servicing, reassignment to special measures, and so forth)	Gosplan USSR, Ministry of Finance
9. Social and economic norms and standards	Gosplan USSR, USSR State Committee for Labor, USSR Ministry of Finance, USSR Ministry of Health, USSR Ministry of Culture

[Table continued on following page]

10. Environmental protection norms and standards	USSR Hydrometeorological Service, USSR State Committee for Science and Technology, USSR Academy of Sciences, Gosplan USSR, USSR Ministry of Health, USSR Ministry of Water Resources, USSR State Committee for the Timber Economy

In addition to the above basic groups of norms and standards, the ministries and departments have to develop norms and standards which reflect the specific nature of the various branches of the economy (transportation, agriculture, and other branches). These norms and standards are presented to Gosplan USSR at its demand.

In order to ensure the interconnection between the norms and standards and the social production efficiency indicators, it is planned to form in the System of Norms and Standards resource economy indicators (normatives), including indicators (normatives) of an economy of fixed productive capital, material expenditures, and of the wage fund of workers in the sphere of material production.

It is planned to define the above indicators for the long term, for a five-year period, and for a year in the form of a draft of assignments for an economy of resources in value terms on the basis of an analysis of the measures provided for by the overall program for scientific and technological progress, forecasts of the development of the branches, technical development plans, and production organization plans in coordination with the indicators for the plans for the social and economic development of the USSR. These indicators are refined when the computations are made for expenditure norms. After these computations are made assignments for an economy of resources are established in the plan in accordance with which the ministries, departments, associations, and enterprises carry out the renewal of their norms and standards.

As the System of Norms and Standards is developed and introduced the use of material resources expenditure norms which are calculated in cost terms must also be ensured.

It is planned to form norms and standards for every reproduced product, which will make it possible to create the conditions for a comparison of expenditures for the production of products and of their production technology with regard to the complex of the resources used.

1.9. The introduction of the System presupposes the realization of measures aimed at improving primary accounting and reporting, at a wider introduction of the normative method of accounting at enterprises and associations, and at strengthening control over actual expenditures of material, labor, and financial resources. In addition to this, there has to be achieved a further improvement of departmental and state reporting in accordance with the single System of Norms and Standards.

2. Organization of the Formation of Norms and Standards

2.1. The System of Norms and Standards is constructed on an hierarchical principle and embraces the following levels:

associations (enterprises) and branch scientific research and planning organizations;

branch ministries and departments of the USSR and the Gosplans of the union republics;

Gosplan USSR, Gossnab USSR, Gostroy USSR, the USSR Ministry of Finance, the USSR State Committee for Labor, and the USSR Central Statistical Administration.

2.2. The formation and reviewing of the norms and standards of the System for the state plans for the economic and social development of the USSR is performed by the ministries, departments, and Gosplans of the union republics which organize this work in the associations and enterprises with the enlistment of branch scientific and planning organizations. In addition, the development of the normative base for the basic directions of the economic and social development of the USSR for ten years (by five-year periods) is performed by branch scientific research or planning organizations of the ministries which are the head ones for the corresponding types of output with the enlistment of the organizations and departments which produce identical output.

2.3. The formation of the norms and standards which are included in the System is carried out in the following three stages: organizational, methodological, and calculational.

The organizational stage consists of defining the procedure for the development and systematic renewal of the norms and standards of the organizations participating in their formation, and also of the amounts of financing for this work.

The methodological stage consists of the preparation of the methodological documents for the formation of the norms and standards, the definition of the corresponding nomenclatures, and an experimental verification and approval of the methodological documents.

The calculation stage consists of the performance of calculations and of the establishment and ensuring of a systematic renewal of the norms and standards.

2.4. The development of model (interbranch) methodological documents for computing the norms and standards is performed by the Scientific Research Institute of Planning and of Normatives at Gosplan USSR which enlists in this work branch scientific research institutes and planning organizations on a basis of a coordination plan approved by Gosplan USSR.

Branch instructions on the computation of norms and standards are worked out and systematically reviewed by the scientific research or industrial planning organizations of the ministries and departments under the methodological direction of the Scientific Research Institute of Planning and Norm Setting at Gosplan USSR. The basic branch instructions on norm setting are coordinated with this institute as the head organization.

2.5. In the ministries responsibility for the organization of the development and introduction of norms and standards is, as a rule, placed upon the economic planning administrations which coordinate the work of the functional administrations in preparing norms and standards.

2.6. In the associations and at enterprises the development of norms and standards is coordinated, as a rule, by the economic planning divisions.

Under the direction of the economic planning divisions, the appropriate association and enterprise subdivisions prepare, introduce, and systematically renew the norms and standards.

2.7. The preparation of the normative base is carried out by the ministries, departments, and Gosplans of the unions republics and by associations and enterprises with the enlistment of branch scientific research and industrial planning organizations.

A card catalog of the branch output is created for the purpose of developing the normative base in which the technical and economic indicators of this output and the analogous indicators for the best domestic and foreign models are concentrated.

2.8. For the purpose of discovering production reserves and increasing the effectiveness of the use of resources and the progressive nature of the norms and standards an analysis (expert appraisal) is carried out of the scientific substantiation of the norms and standards in the ministries and departments. At the level of Gosplan USSR this work is performed by the branch divisions of Gosplan USSR and the Scientific Research Institute of Planning and Norm Setting at Gosplan USSR for an established output products list on the basis of the data of the ministries and departments. This analysis of norms and normatives is conducted in the following directions:

a search for additional measures to introduce scientific and technical achievements in order to take account of them in the norms and standards;

an examination and evaluation of the indicators which characterize the progressive nature of norms;

the comparison of the norms and standards with the planning indicators and the indicators of the actual specific expenditures of resources, and also with the most progressive average branch norms and standards and with foreign analogs.

The results of the norm analysis are taken into account by Gosplan USSR and the ministries and departments in forming the normative base for the planning period.

The analysis of the norms and standards is performed with regard to the data of an extra-departmental expert appraisal of the technical and economic indicators of especially important types of output and production processes which is carried out under the direction of the state committee for science and engineering at the stage of the technical assignments and final results. Consideration is also given to the results of an evaluation of the technical level of the machinery, equipment, and other equipment which is produced in order to develop and carry out measures to improve the technical and economic indicators of products which are being produced and newly mastered and to remove obsolete output from production.

2.10. The directors of the organizations (enterprises) which approve these norms are responsible for their reliability and punctual refinement.

The leaders of ministries and departments are responsible for the norms and standards which are presented to Gosplan USSR, Gostroy USSR, Gossnab USSR, the USSR Ministry of Finance, the USSR State Committee for Labor, and the USSR Central Statistical Administration.

2.11. The norms and standards which have been presented by ministries and departments and accepted by Gosplan USSR are mandatory for use in the calculations of the indicators of the drafts of state plans.

3. The Procedure for Developing and Approving Norms and Standards

3.1. Labor and Wage Expenditures Norms and Standards

3.1.1. The composition of the norms and standards for labor and wage expenditures is determined by the requirements of the tasks to calculate an increase in labor productivity, determine the number of workers by branches and elements of production, substantiate wage funds, and to form, on this basis, the other indicators of the plan at all levels of planning.

3.1.2. Time norms (normed production labor intensiveness) for an operation, part, unit, product, type of output, and type of work and output norms are calculated at the enterprise in the subdivisions (group, bureau, labor norm setting sector) which are a part of shops or plant administration divisions -- economic planning, labor and wage division (technological divison) -- on the basis of interbranch and branch normatives. These standards are approved by the enterprise director in agreement with the factory-plant trade union committee.

3.1.3. Standards on staff size and service are developed periodically as needed:

interbranch -- by the Central Bureau of Industrial Normatives of the USSR State Committee for Labor jointly with the All-Union Central Council of Trade Unions;

branch -- by the branch scientific research organizations and enterprises under the methodological direction of the Central Bureau of Industrial Normatives of the USSR State Committee for Labor.

3.1.4. The full labor intensiveness of a unit of output in an established products list is computed at the appropriate management level in the form of actual and planned magnitudes.

The actual full labor intensiveness of a unit of output which reflects the actual labor expenditures of all of the categories of industrial production personnel for the production of the output unit or of a unit of work during a reporting period is formed at the enterprise. At higher levels this indicator is computed in the appropriate computer center by means of calculating the average magnitude on the basis of the data of enterprises.

The planned full labor intensiveness per unit of output reflects the labor expenditures of all of the categories of industrial production personnel for the production of the output unit or of a unit of work which are established with regard to changes in them during the planning period compared to the actual expenditures during the base period. On the level of Gosplan USSR this indicator has to be computed in the Main Computer Center of Gosplan USSR on the basis of the appropriate indicators which are communicated by USSR ministries and departments at the end of the reporting period. The USSR ministries and departments, in their turn, determine the indicator of full planned labor intensiveness for a unit of output in the products list of the state plan on the basis of the same indicators which are formed at enterprises and in production associations.

The indicators of the planned full labor intensiveness per unit of output in the branches are approved by the ministries and departments after coming to an agreement with the labor division and branch division of Gosplan USSR.

3.1.5. Wage rates are worked out by the USSR State Committee for Labor once every five years and are approved by the USSR Council of Ministers.

Salaries are established for each branch of industry in accordance with the salary schemes for executives, engineering and technical workers, and employees which are worked out by the USSR State Committee for Labor and approved by the USSR Council of Ministers.

Job rates (wage expenditures for the basic production workers for the performance of an operation and the production of a part, unit, product, type of output, and type of work) are calculated at the enterprise on the basis of the established wage rate (salaries) and time norms (output) and after agreement with the factory-plant trade union committee are approved by the enterprise director.

3.1.6. Long-term wage standards per ruble of output are established for five years (distributed by years). The examination and approval of these normatives is performed for enterprises and associations by the USSR ministries and departments, and for ministries and departments by Gosplan USSR.

3.2. EXPENDITURE NORMS FOR RAW MATERIALS, MATERIALS, AND FUEL AND ENERGY RESOURCES

3.2.1. The Planning of Assignments for an Average Decrease in the Expenditure Norms for Raw Materials, Materials, Fuel, and Thermal and Electric Energy in Production

Assignments for an average decrease in the expenditure norms for raw materials, materials, fuel, and thermal and electric energy in production for the planning period are established in the State Plans for Economic and Social Development of the USSR for the USSR ministry and departments and the union republics in a running total in percentages of the level of the norms in the base year. The last year of the five-year plan preceding the planning period is taken as the base year.

In developing the draft plan for the basic directions of the economic and social development of the USSR for ten years (by five-year periods) the USSR ministries and departments and the union republics present to Gosplan USSR preliminary draft plans of organizational and technical measures to economize materials, fuel, and energy; for the first five-year plan -- with an annual breakdown, for the second five year plan -- for the last year of the five-year plan.

Gosplan USSR examines these proposals of the USSR ministries and departments and the union republics and, in accordance with the draft of the basic directions of the economic and social development of the USSR which has been adopted and approved in the established procedure, works out and delivers to them control figures on the average amounts of decrease in the expenditure norms for materials, fuel, and thermal and electric energy for the years of the forthcoming five-year plan. The USSR ministries and departments and the union republics ensure the delivery of the control figures to the associations and enterprises.

In developing the five-year plan (by years of the five-year plan) the USSR ministries and departments and the union republics with the enlistment of branch institutes, associations, and enterprises and on the basis of the control figures of Gosplan USSR for an average decrease in the expenditure norms for materials, fuel, and thermal and electric energy for the five-year plan and of the planned amounts of output (work) production refine their plans for organizational and technical measures and define drafts of assignments for an average decrease in the expenditure norms by the years of the five-year plan and present them to Gosplan USSR for the established products list of material resources and output (types of work).

Gosplan USSR examines these proposals and defines assignments for an average decrease in the expenditure norms for raw materials, materials, fuel, and thermal and electrical energy in production by USSR ministries and departments and by union republics by the years of the five-year plan which are approved within the state five-year plan for the economic and social development of the USSR.

The annual assignments for an average decrease in the expenditure norms are worked out on the basis of the assignments of the five-year plan for the given year.

The fulfillment of the assignments for an average decrease in the expenditure norms at all levels of economic management is evaluated in a running total in relation to a base year.

3.2.2. Norm Setting for the Expenditure of Raw Materials, Materials, Fuel and Thermal and Electrical Energy

The following are designated in order to plan the distribution of material resources and control their use:

expenditure norms in basic production;

expenditure norms for the auxiliary and other needs of production;

standards and indicators for the use of material resources;

expenditure norms for repair and operations needs;

expenditure norms in construction.

Expenditure norms for raw materials, materials, fuel, and thermal and electric energy have to be progressive, technically and economically substantiated, to correspond to the level of advanced technology and production organization, and to ensure a decrease in the expenditure of material resources and an increase in the economic efficiency of production.

3.2.2.1. Expenditure Norms in Basic Production

Expenditure norms for raw materials, materials, fuel, and thermal and electric energy are worked out with regard to the assignments for an average decrease in expenditure norms which are established in the five-year and annual plans, and also the assignments of the USSR ministries and departments for enterprises for those types of material resources for which these assignments are not centrally established.

Individual norms define the expenditure of a norm type of raw material and material for the production of a unit of output (work) -- a part, product, product in units of mass or volume, and so forth.

Group norms are computed as the average amounts of the expenditure of raw materials and materials in an established branch products list for planned amounts of production of the same types of output (trucks, metal-cutting machine tools, wheeled tractors, and so forth) or work in the USSR ministries and departments and the union republics as a whole, and when necessary, in associations and enterprises also.

Expenditure norms for the next planning year are worked out by the appropriate enterprise and association services in a specified and summary form for all of the production of a product or type of output (work) which is stipulated in the plan.

Expenditure norms for the five-year period are worked out for the most important types of materials, raw materials, fuel, and energy in a breakdown of the established products list of output and types of work.

3.2.2.2. Expenditure Norms for Raw Materials and Materials for the Auxiliary and other needs of Production

Expenditure norms for raw materials and materials for the production of technological rigging and special tools are worked out per unit of each type of tool and rigging on the basis of design and technological documents and with regard to the operating waste and loss normatives.

Expenditure norms for the production of packing and packaging for transportation are computed per unit of packing and packaging in accordance with the design and technological documents for their production and on the basis of the established technical specifications for the transportation of output.

The expenditure norms for the testing of finished output are established in accordance with the operating technical specifications, the All-Union State Standards, and the testing programs.

The expenditure norms for the adjustment of production equipment and for start-up adjustment work are devised in accordance with the requirements of production technology and technical control.

The expenditure norms for carrying out planned measures connected with production mechanization and automation are worked out analogously to the computation of the expenditure norms for basic production.

The expenditure norms for the production of new equipment models, the development of new production processes, and the performance of scientific research work are worked out on the basis of production design documents or existing data for analogs.

3.2.2.3. Standards and Indicators for the Use of Raw Materials, Materials, and Fuel and Energy

The following are among the expenditure standards and indicators for the use of raw materials, materials, and fuel and energy:

the specific expenditure of material resources per unit of mass, area, volume, and length in the performance of production processes (forging and pressing work, machining, welding, painting, and so forth);

the amounts of production waste and losses of material resources by types of production processes.

The following basic indicators are used in industrial production to evaluate the effectiveness of the use of material resources and the progressiveness of expenditure norms:

coefficients of the use of materials in production which are determined as the relationship of useful expenditure (mass, theoretical expenditure) to the materials expenditure norm;

the expenditure of materials per unit of a technical characteristic of a product which is determined by means of relating the expenditure norms per unit of product to a selected parameter of its technical characteristics;

product (semi-finished good) output which expresses the relationship of an amount of produced product (semi-finished good) to the amount of actually expended basic raw materials and materials;

coefficients of product extraction from basic raw materials which characterize the degree of the use of a useful substance which is contained in a given type of basic raw material.

Cutting coefficients, expenditure coefficients, and other analogous indicators may also be used for these purposes.

3.2.2.4. Raw Materials and Materials Expenditure Norms for the Repair and Operation of Fixed Capital

Raw materials and materials expenditure norms for the repair and operation of fixed capital per million rubles of balanced value are worked out on the basis of the indicators of the use of fixed capital and of data about wear and tear and service life in accordance with the operating systems of planned preventive repairs and in consideration of the introduction of industrial repair methods.

The expenditure norms for the repair and operation of fixed capital in a USSR ministry and department or union republic as a whole are calculated on a basis of partial expenditure norms for types of fixed capital and with reagrd to its proportion in the total balance value:

for the repair and operation of the implements of labor;

for the repair and operation of production buildings and installations;

for the repair and operation of non-production buildings and installations;

for the repair and operation of generally used automobile roads and road installations.

3.2.2.5. Expenditure Norms and Indicators of the Use of Materials in Capital Construction

The assignments for an economy of materials in capital construction are formed on the basis of the proposals of USSR ministries and departments, union republics, and Gostroy USSR in a materials products list which is established by Gosplan USSR and are used in the calculations of the average expenditure norms per million rubles of estimated cost of construction and installation work.

Project norms for the expenditure of materials per 1 million rubles worth of the estimated cost of construction and installation work are worked out by planning organizations, approved by Gostroy USSR and Gosplan USSR, and designed toward determining the average and the branch materials expenditure norms on the basis of which the need for materials in the economy as a whole and also in the USSR ministries and departments and union republics is planned.

Estimated expenditure norms are worked out by planning, production design, and scientific research organizations, are approved by Gostroy USSR within its construction norms and rules, and are designed basically for determining the estimated cost of construction and installation work.

Production expenditure norms are worked out in the construction and installation organizations by norm research organizations and the trusts of "Orgtkhstroy" (planning and design and scientific research institutes), are approved by superior organizations, and are designed for determining the need for material resources by physical work volumes.

3.2.3. Norms for Stocks of Raw Materials, Materials, Fuel, and Finished Output

The following are worked out in order to plan stocks of material resources and control their actual residuals:

at consumers -- norms of production stock;

at the bases and warehouses of Gossnab USSR -- commodity stocks norms;

at supplier enterprises -- norms of saleable stocks.

The average annual stock of every type of raw material and material which is accepted as a carry-over stock at the end of the planning year is called the production stock norm. The production stock norm is measured in the days of the average annual consumption of the given type of resource. Those resources which have already been received by consumers but have not yet undergone processing are classified as production stocks.

The commodity stock norm at the bases and warehouses of Gossnab USSR is the minimum amount of resource of each type which ensures the continuous overall supply of customers who receive resources in non-transit quantities. The commodity stock norm is measured in days of the average daily amount of the warehouse turnover of a given resource. Resources in excess of the established amount of warehouse deliveries to consumers from their allocations which are at the disposal of bases and warehouses are classified as commodity stocks.

The norm for a saleable stock of a material in the form of finished output at a supplier enterprise is characterized by the minimum amount of output of each type which is produced by this enterprise and which ensures the continuous overall fulfillment of delivery contracts. This norm is measured in days of the average daily amount of the production of output.

3.2.4. Indicators of the Use of Raw Materials, Materials, Fuel, and Thermal and Electric Energy which are Reflected by the All-Union State Standards and Other Normative Documents which Define the Technical Level of Output

In the development by the USSR ministries and departments of the All-Union State Standards, All-Union Standards, Technical Specifications, Methodological Instructions, and other types of normative documents which define the demands upon the composition and content of production designing documents and upon the criteria for evaluating the quality and technical level of output the following indicators are provided for evaluating output in terms of the expenditure of the basic types of raw materials, materials, fuel, and thermal and electric energy:

an indicator of the expenditure of the most important types of raw materials, materials, and fuel and energy per unit of technical characteristic or parameter which most fully characterizes the consumer qualities of their product;

the specific mass of a product per unit of technical characteristic or parameter which most fully characterizes the consumer qualities of a product;

a coefficient of the use of material resources -- the relationship of useful expenditure (mass) to the expenditure norm for the production of a unit of output (work).

The requirements upon the economical nature of output from the point of view of its metal and energy intensiveness and so forth are formed and reflected in the technical designing assignments on the basis of the data of a comparative analysis of the above-mentioned indicators for new equipment models and construction objects which are being created and advanced domestic and foreign data.

3.3. Norms and Standards for the Use of Production Capacties

3.3.1. The norms and standards for the use of production capacities of operating industrial enterprises are worked out by the USSR ministries and departments through branch scientific research and planning organizations for enterprises and objects (groups) in accordance with the Methodological Regulations on determining the norms and normatives for the use of production capacities of operating industrial enterprises and objects.

Branch instructions on the development of norms and standards for the use of production capacities are worked out and approved by the USSR ministries and departments on the basis of methodological regulations which are approved by Gosplan USSR.

In an established products list, the USSR ministries and departments present for the approval of Gosplan USSR drafts of standards for the use of production capacities.

Standards for the use of production capacities which have not gone into the established products list are approved by the USSR ministries and departments in agreement with Gosplan USSR.

Standards for the use of production capacities are examined and approved once in five years before the composition of the state five-year plans.

The introduction of approved norms and standards is performed by the USSR ministries and deparmtents.

3.3.2. Norms for the mastery time of planned capacities and for the economic indicators of industrial enterprises and objects which are being commissioned are developed in accordance with the methodological regulations which have been approved by Gosplan USSR and the USSR ministries and departments and are approved by Gosplan USSR once in five years.

3.4. Specific Capital Investments Standards

3.4.1. The methodology for determining the standards of specific capital investments is worked out by the Scientific Research Insitute of Planning and Norm Setting at Gosplan USSR jointly with the Summary Division for Capital Investments and the Division of Planning and Surveying Work of Gosplan USSR and is approved by Gosplan USSR and Gosstroy USSR.

3.4.2. Specific capital investments standards are progressive indicators of expenditures for the creation of the fixed capital of production and non-production enterprises and objects (per unit of size) for the five-year planning period and the long term.

The list of enterprises, objects, and productions for which standards have to be worked out is established by the USSR ministries and departments and the union republic Gosplans in agreement with the divisions of Gosplan USSR which plan the development of the branches of the economy and industry.

3.4.3. In accordance with the established products list, individual standards of specific capital investments are worked out for individual enterprises and objects which are being newly constructed and for the reequipping, reconstruction, and expansion of operating enterprises per unit of capacity.

For productions and sub-branches consolidated and general standards of specific capital investments are worked out for capacities which are being put into operation, and for the reequipping, reconstruction, and expansion of operating enterprises and the construction of new enterprises in the products list established by Gosplan USSR.

For branches, the most important productions, and sub-branches summary standards of specific capital investments are worked out for an increase in the production of output or services and for the reequiping, reconstruction, and expansion of operating and construction of new enterprises in accordance with the list of branches, sub-branches, and productions established by Gosplan USSR, and also with regard to these expenditures as a whole.

For the extracting branches of industry standards for the maintenance for the capacities of operating enterprises are also worked out.

Standards of specific capital investments for a long-term period are worked out for branches, sub-branches, types of productions, and capacities in the products list established by Gosplan USSR for the purpose of developing the draft plan of the basic directions of the economic and social development of the USSR for ten years.

3.4.4. The USSR ministries and departments and the union republic Gosplans present drafts of specific capital investments standards at established times to the appropriate divisions of Gosplan USSR which plan the development of the branches of the economy and industry, with copies to the Scientific Research Institute of Planning and Norm Setting at Gosplan USSR.

3.4.5. The coordination and methodological direction of scientific research work in the field of developing specific capital investments normatives and analyzing their scientific and technical and economic validity is carried out by the Scientific Research Institute of Planning and Norm Setting at Gosplan USSR which presents these standards for examination to Gosplan USSR.

3.5. Norms and Standards for the Use of Equipment And the Need for Equipment and Cable Products

3.5.1. The norms and standards of the use of equipment and of the need for equipment which are used at the various levels of planning (from enterprises and production associations to Gosplan USSR) are designed for evaluating the use of equipment, calculating production capacities, and determining the need for equipment.

3.5.2. The complex of norms of the need for cable products is designed for determining the need of the USSR ministries and departments and union republics for cable products in consumer directions.

3.5.3. The development of the norms and normatives of the use of equipment and of the need for equipment and cable products is carried out for a products list of equipment and cable products which is agreed upon with Gosplan USSR.

3.5.4. The norms and standards of the use of equipment and the need for equipment and cable products are designed for determining the need for equipment and cable products for the purpose of working out the basic directions of the economic and social development of the USSR for ten years (by five-year periods) and for working out the five-year and annual plans.

3.5.5. The norms and standards of the need for equipment and cable products which are worked out for a ten-year period are designed for determining the need for them in the basic consumer directions.

For equipment:

the formation of the necessary equipment pool which does not require installation;

the creation of complete sets of machine building output;

the creation of complete capital construction objects;

the replacement of worn out equipment (repair and operations needs).

For cable products;

the creation of complete sets of machine building output;

the creation of complete capital construction objects;

repair and operation needs.

The corresponding norms are worked out to support the calculations of the need for equipment and cable products.

3.5.6. The process of developing, examining, and agreeing upon norms for the need for equipment and cable products for a ten-year period consists of the following stages:

1) a refinement of the general methodological recommendations on determining the need for equipment and cable products for the formation of the basic directions of the economic and social development of the USSR for ten years;

2) the preparation and coordination of branch methodologies for determining the need for concrete types of equipment and cable products for the purpose of forming the basic directions of the economic and social development of the USSR for ten years;

3) the development of draft norms by the USSR ministries and departments -- the basic consumers of equipment and cable products;

4) an analysis of the draft norms and normatives which have been worked out and a calculation of the need for equipment and cable products in the economy as a whole;

5) an expert appraisal of the norms and normatives and calculations for the need for equipment and cable products which have been worked out and the coordination of these norms and normatives and need calculations with Gosplan USSR.

The first stage is performed by the Scientific Research Institue of Planning and Standards at Gosplan USSR. The performance of this stage is completed in August-September of the second year of the current five-year plan and in October the refined general methodological recommendations are distributed to developers, that is, to the scientific research institutes of the machine building ministries which are responsible for supplying the economy with the equipment and cable products.

The second stage is performed by the scientific research institutes of the above-mentioned machine building ministries and the scientific research institutes of the USSR ministries and departments which are the basic consumers of this equipment and cable products.

The branch methodological recommendations which are prepared with the participation of the scientific research institutes and USSR ministries and departments -- the basic consumers of the equipment and cable products -- are agreed upon with the Scientific Research Institute of Planning and Norms at Gosplan USSR and with this the performance of the second stage ends. This stage is performed during the last two months (November-December) of the second year of the current five-year plan.

The scientific research institutes of the USSR ministries and departments -- the basic consumers of equipment and cable products -- are the executors of the third stage.

In August of the third year of the current five-year plan the development of the normative base has to be completed and the draft norms together with explanatory notes are presented by the USSR ministry and departments to the appropriate machine building ministries which are responsible for providing the economy with the given equipment and cable products.

The fourth stage is performed by the scientific research institutes of the machine building ministries which are responsible for providing the economy with the given equipment and cable products.

The summary of the norms and standards of the need for equipment and cable products by the basic consumers and the calculation of the needs and explanatory notes are presented by the machine building ministries in October of the third year of the current five-year plan to Gosplan USSR and to the Scientific Research Institute of Planning and Norms at Gosplan USSR.

The final, fifth stage is performed by the Scientific Research Institute of Planning and Norms at Gosplan USSR. As the expert appraisal is completed the norms and indicators of the need for equipment and cable products are presented to Gosplan USSR in December of the third year of the current five-year plan.

3.5.7. The process of developing, examining, and coordinating the norms, standards and indicators which are used for determining the need for equipment and cable products for the planned five-year plan by the USSR ministries and departments and union republics consists of the following stages:

1) a refinement of the general methodological instructions on the development of the norms and standards of the use of equipment and of the need of equipment and cable products;

2) the preparation and coordination of branch methodologies on the development of the norms and needs for determining the need for concrete types of equipment and cable products in the USSR ministries and departments in the union republics;

3) the development of draft norms and standards for determining the need for equipment and cable products in the USSR ministries and departments and union republics;

4) an expert appraisal of the norms and standards which have been worked out and their coordination with Gosplan USSR, Gossnab USSR, and the ministries and departments which distribute equipment.

The first stage is performed by the Scientific Research Institute of Planning and Norms at Gosplan USSR.

The performance of this stage has to be completed in the third quarter of the third year of the current five-year plan, and in September the refined methodological recommendations are distributed to developers which are the scientific research and planning institutes of the USSR ministries and departments and the union republics -- the consumers of the equipment and cable products.

The second stage is performed by the scientific research and planning organizations of the USSR ministries and departments and the union republics -- the consumers of equipment and cable products.

The branch methodologies which have been prepared are agreed upon with the Scientific Research Institute of Planning and Standards at Gosplan USSR and with this the performance of the second stage is completed. This stage is performed during two months (October and November) of the third year of the current five-year plan.

The same scientific research and planning institutes which perform the previous stage are the executors of the third stage.

The development of the normative base has to be completed in the third quarter of the fourth year of the current five-year plan. The draft norms along with an explanatory note are presented by the USSR ministries and departments and the union republic Gosplans to Gosplan USSR or to Gossnab USSR, to the ministries which distribute the equipment, to the Scientific Research Institutes of Planning and Normatives at Gosplan USSR, and to the head scientific research institute which is subordinate to Gossnab USSR and to the ministry which distributes the given equipment. In addition, for types of equipment the norms and the need for which were calculated for a ten-year period the above-mentioned materials (the draft norms for the planned five-year period and the explanatory notes) are presented to the appropriate scientific research institutes of the machine building industries which are responsible for providing the economy with the given equipment and cable products.

The fourth stage -- the expert appraisal of the norms and standards -- is performed by the Scientific Research Institute of Planning and Normatives at Gosplan USSR or by the scientific research institutes which are subordinate to Gossnab USSR and to the ministries and departments which distribute the equipment depending upon who distributes one or another kind of equipment. In addition, the scientific research institutes of the machine building ministries to which the draft norms and standards are sent must in October of the fourth year of the current five-year plan inform the above institutes of their criticisms.

As the expert appraisal is completed in December of the fourth year of the current five-year plan the draft norms and standards are presented to Gosplan USSR or to Gossnab USSR and to the ministries which distribute the equipment.

5.5.8. The composition of the norms and standards which are refined for the years of the five-year plan is defined by Table 1 (point 5.5). All of the norms and normatives are subject to refinement, except for the norms and normatives of the need for equipment and cable products for creating complete capital construction objects which have been developed for the five-year plan, since they correspond to the average values of the norms and normatives for the five-year plan. Instead of a refinement for the next planning year, two norms are calculated for each type of equipment:

norms of the need for equipment and cable products for creating complete capital construction objects which are being created as a result of new construction and the expansion of operating enterprises;

norms of the need of equipment and cable products for creating complete capital construction objects which are being created as a result of the reconstruction and reequipping of operating enterprises.

The process of refining and coordinating the norms and normatives of the need for equipment and cable products for the purpose of making up the annual plans consists of the following stages:

1) the refinement of the norms and standards which have been established for the years of the five-year plan and a calculation of the norms and standards of the need for equipment and cable products for the purpose of creating complete capital construction objects for the next planning year;

2) an expert appraisal of the refined norms and standards and of the norms and standards of the need for equipment and cable products for the purpose of creating complete capital construction objects for the next planning year.

The first stage is performed by the same scientific research and planning institutes which calculated the norms and standards for the planned five-year plan which are being refined.

The norms and standards of the need for equipment and cable products for the purpose of creating complete capital construction objects are calculated for the planning year on the basis of the structure of objects under construction which has been established for this year and of group norms which are the basis for computing the norms and standards for the planned five-year plan.

The refined norms and normatives and the norms and standards of the need for equipment and cable products for the purpose of creating complete capital construction projects which have been calculated for the planning year are presented in March in the pre-planning year by the USSR ministries and departments and the union republic Gosplans to Gosplan USSR or Gossnab USSR, to the ministries which distribute equipment, and to the Scientific Research Institute of Planning and Normatives or the scientific research institutes which are subordinate to Gossnab USSR and to the ministries which distribute equipment. This stage is performed, as a rule, during the first quarter of the year preceding the planning year.

The second stage is performed by the Scientific Research Institute of Planning and Standards at Gosplan USSR or by the scientific research institutes which are subordinate to Gossnab USSR or to the ministries and departments which distribute the equipment, depending upon who distributes one or another type of equipment.

As the expert appraisal is completed in April of the year preceding the planning year the norms and standards are presented to Gosplan USSR or to Gossnab USSR and to the ministries which distribute the equipment.

3.5.9. In order to analyze the fulfillment of the norms and standards and the equipment distribution plans use has to be made of the data of the state statistical reporting on the existence and movement of equipment and on remainders and the expenditure of cable products (the existing reporting is subject to refinement and additional reporting is introduced).

4. AUTOMATION OF THE COLLECTION, ACCUMULATION, AND RENEWAL OF NORMS AND STANDARDS

4.1. The automation of the formation of the norms and standards is provided for by an automated system for the collection, accumulation, and renewal of norms and normatives -- an ASN which is a component part of the automated system of planning calculations (ASPC), the branch automated systems of planning and management (BASP), and the automated systems of association and enterprise management (ASAEM).

4.2. The ASN consists of subsystems the list of which corresponds to the basic groups of norms and standards which are formed in the system of norms and normatives (see points 1-8). On the basis of this, the following subsystems which can be added to as the system develops are singled out in the ASN:

norms and standards for the expenditure of raw materials, materials, fuel, and thermal and electric energy -- ASNm;

norms and standards for determining the need for and use of equipment -- ASNo;

norms and standards for labor and wage expenditures -- ASNt;

norms for capital construction -- ASNk;

production capacity norms -- ASNn;

financial norms and standards -- ASNf;

social and economic norms and standards -- ASNh;

environmental protection norms -- ASNs.

4.3. Within in the ASN funds of norms and standards are created on all planning levels with the use of computers which form a specialized data base. On the basis of the information which is accumulated in the funds an analysis of dynamics is performed and norms and normatives are forecasted, control over their fulfillment is exercised, and a comparison is made between the actual specific expenditures and planned norms and the norms and normatives which are established in the plans.

4.4. The forms of the documents in which the norms and standards are contained have to meet the requirements of the All-Union State Standard 6.101-75 "Unified System of Documentation Used in Automated Management Systems." (General Regulations, Section 3.4). The coding of the data in the above-mentioned document forms is carried out in accordance with the all-union classifiers of output, enterprises, and units of measurement and other all-union classifiers. When branch classifiers are used and automatic shift to the designations of the all-union classifiers has to be provided for.

4.5. Within the ASN the necessary mathematical support is worked out for solving the problems of forming the norms and standards on the basis of the use of standard computer programs and other means of general program support.

2959
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UTILIZATION OF RESOURCES AND SUPPLY

END TO SUPPLY CONTRACT VIOLATIONS URGED

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 80 p 2

[Article: "Observe Strict Contract Discipline"]

[Text] The steady growth in the scale of production, growing specialization of production, and the development of economic ties among sectors and particular enterprises demand that contract discipline be strengthened by every means. At the 25th CPSU Congress Comrade L. I. Brezhnev said: "We must close every loophole that still permits indifferent managers to advance as production leaders, despite violations of contract obligations, low quality output, and poor use of resources. This requires an effective system of material and nonmaterial stimulation combined with rigorous and irreversible penalties for violating plan and contract discipline."

For the Full Assortment

During the 10th Five-Year Plan the ministries, departments, and supply and marketing agencies have done much to strengthen supply contract discipline, improve economic relations, and fulfill contract obligations for the full assortment on time.

The country's economy is developing on the basis of continued expansion and elaboration of the system of intersectorial and intrasectorial economic ties constructed in accord with contracts. Under these conditions, if just one association or enterprise does not fulfill its contract obligations to customers, this leads to disruptions in the work of associated organizations. Many enterprises observe strict contract discipline. Among them, for example, are the Leningrad Pipe Plant, the Samarkand Superphosphate Plant, the Tikhoretsk Krasnyy Molot Plant, the Kalinin Excavator Plant, and numerous others who fulfill plans for deliveries of output in conformity with contracts.

The growing complexity of production ties presupposes consistent refinement of economic relations among sectors, associations, and enterprises.

Delivery of output in the assortment and at the time set in the economic contract is becoming one of the chief indexes for evaluating enterprise work. The role of the economic contract is rising; it is the basic document that defines the rights, obligations, and responsibility of the parties for delivery of output.

It is established that the penalties envisioned by law or contract for violation of contract obligations with respect to delivery of output are applied on a mandatory basis without mutual setoffs.

Delivery of output by cooperative agreement cannot be separated from the general campaign for plan fulfillment. These are two interrrelated aspects of a single problem. Cooperative deliveries cannot be performed successfully if the enterprise or sector is behind its state assignments. This applies to the entire national economy, but in particular to its leading sectors whose successes and failures affect the economy as a whole.

The delivery of fuel and its economical and rational use are very important for successful work by industry. The November 1979 Plenum of the CPSU Central Committee drew special attention to supplying fuel to the population and for municipal-domestic needs. It is important not just to fulfill the plan of coal extraction, but also the coal shipping plan. Today as never before we must have precise, smoothly coordinated work by USSR Gossnab, the USSR Ministry of the Coal Industry, and the Ministry of Railroads. By their combined efforts they must see that coal is delivered on time to electric power plants and industrial enterprises, for municipal-domestic needs, and to the population.

It is widely known that several metallurgical plants did not fulfill their assignments last year for production of economical types of metal products. Moreover, the level of fulfillment of the plan for production of efficient metal products of particular types was lower than fulfillment of the plan for production of rolled products in general. Metallurgy has its own difficulties and "tight spots," but difficulties cannot be used to cover up poor organization in some sectors and failure to hold violators of contract disciplines strictly responsible. Last year the plant imeni Dzerzhinskiy failed to deliver to customers more than 72,000 tons of rolled ferrous metal contracted for and ordered.

Capital construction on an enormous scale is underway in our country and the introduction of new capacities increases steadily. The CPSU Central Committee has frequently called the attention of party, Soviet, and economic bodies to the importance of timely supply of materials and equipment to start-up construction sites and putting them into operation. Last year the Syzran Pipe Building Plant of the Ministry of Power Machine Building was supposed to manufacture 10 belt conveyors and two mills of the appropriate grades for the Lebedin, Mikhaylovskiy, and Severnyy mining concentrate combines in the third quarter. These deliveries were not made on time; the equipment was shipped from the plant to the sites in November and December 1979, which seriously delayed the launching of the combines on time.

The Transition To Direct, Long-Term Ties

The further development and improvement of direct long-term economic ties among enterprises is considered very important in strengthening contract discipline. The 25th CPSU Congress posed the task as follows: "Complete the transition for associations and enterprises with mass and large-series production to direct long-term ties, basing their mutual relations on long-term economic contracts."

With the participation of the ministries and departments USSR Gossnab worked out and ratified plan assignments for the development of direct long-term ties in the 10th Five-Year Plan. The stability of direct long-term economic ties improved somewhat. In 1980 deliveries of production-technical output by this form of supply are supposed to be about 45 billion rubles, which is almost half again as much as in 1975.

Stability of production relations among enterprises enables them to solve many technical and organizational problems. The Aksaykardandetal' Plant receives bearings from State Bearing Plant No 10 by direct long-term ties. Besides the times and quality of output delivered,their contract contains an agreement on delivery of output in reusable metal containers. The Dnepropetrovsk Tire Plant delivers its output to the Avtogaz Association by direct ties; their contract envisions testing of economical new tires.

Enterprise employees have many complaints of frequent, unjustified violations of direct long-term ties and refusals by suppliers to perform contract obligations.

Last year the Ministry of the Chemical Industry made 460 changes in the production plans of its subordinate enterprises, while the USSR Ministry of Ferrous Metallurgy made 349 changes. The Ministry of Agricultural Machine Building made changes in production and material-technical supply plans 340 times. Of these, 32 referred to Rostsel'mash, 47 to the Taganrog Combine Plant, and 24 to the Volgograd Tractor Plant. However, the main USSR administrations for supply and marketing of USSR Gossnab are not preventing these cases, and sometimes commit similar violations themselves. The Main Administration for Interrepublic Deliveries of Metal Products made changes in almost one-third of the total number of assignments issued by it, and not always for good reason.

One would expect the proper conclusions to be drawn from these serious violations. But this did not happen. 1980 has just begun, but already the enterprises have refused to perform assignments, which undermines established economic ties and contract discipline. For a number of years the Kommunarsk Metallurgical Plant has delivered high-grade construction steel to enterprises of the Ministry of Agricultural Machine Building, the Ministry of the Motor Vehicle Industry, the USSR Ministry of Power and Electrification, and the Ministry of Heavy and Transport Machine Building. But in 1980 the plant, ignoring the established delivery plan, sent out 140 repudiations to customers, including enterprises of the above-mentioned ministries.

Certain enterprises of the Ministry of Construction and Road Machine Building are too slow in concluding contracts for deliveries in the 1980 plan. The Andizhan Machine Building Plant has not concluded a contract with the Tashkent Aggregate Plant for the delivery of 250 tons of pig-iron, while the Donetsk (Rostovskaya Oblast) Excavator Plant still has not concluded a contract with the Novocherkassy Electric Locomotive Building Plant for the delivery of 500 tons of cast parts. The enterprises of other ministries are also committing such violations.

The decree on the economic mechanism urged USSR Gossnab and the involved USSR ministries and departments and republic Councils of Ministers to finish switching their organizations to direct, long-term ties in 1980.

In the concluding year of the five-year plan it is essential to take additional steps to improve the quality of the direct long-term economic ties being established. This should be done by giving them greater stability, comprehensiveness, and efficiency and insuring absolute compliance with contract discipline. In practice a significant number of long-term contracts for direct long-term economic ties are still concluded in a formalistic manner and differ little from ordinary yearly contracts for delivery of output.

Improve the Work of Supply Agencies

USSR Gossnab and its local and central bodies have a large part in strengthening contract discipline and seeing that it is followed. Uninterrupted supply of material resources to the national economy depends greatly on smooth work by these organizations. USSR Gossnab and its agencies have recently begun stricter monitoring of performance of contract deliveries. Operational steps are being taken to eliminate "tight spots" in the provision of material-technical resources to associations and enterprises. USSR Gossnab must continue to strengthen checks on compliance with contract discipline and performance of the contract plan. It is essential to raise the level of work of all material-technical supply agencies, from the plant and ministry to Gossnab and to take a critical attitude toward shortcomings.

There are still some main territorial administrations of the USSR Gossnab who devote primary attention to supplying the enterprises of "their own" economic regions and do not adequately monitor fulfillment of delivery contracts by enterprises of the region to other economic regions. For example, last year the Kuznets Basin administration fulfilled its plan for delivery of rolled metal products to its own supply bases by 110 percent, while the plan for supplying other administrations of USSR Gossnab was just 90 percent fulfilled. But hundreds of enterprises and organizations receive metal from Gossnab bases. This violation of contract discipline is continuing this year. The Donets Administration of Ukrainian SSR Gossnab fulfilled the plan for delivery of rolled metal products to its own bases by 126 percent, while the plan for delivery to other territorial administrations was only 73 percent fulfilled. Georgian SSR Gossnab fulfilled its plan for delivery of rolled metals to its own bases by 123 percent, but just 55 percent for deliveries to enterprises of other territorial administrations.

USSR Gossnab and the ministries and departments would be advised to review all cases of violations carefully and evaluate them properly.

The CPSU Central Committee decree "Further Improving the Economic Mechanism and the Tasks of Party and State Bodies" posed the challenge of raising the level of organization and teamwork in all areas of the economy, striving for a more business-like attitude in the work of the administrative apparatuses of ministries and other executive bodies and greater operational flexibility in decision-making, steadily strengthening state, production, and labor discipline, and increasing the accountability of workers for fulfillment of established plans and contract obligations as a key condition for successful fulfillment of the 1980 plan.

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INTRODUCTION OF NEW TECHNOLOGY

PROBLEMS, IMPACT OF SCIENTIFIC-TECHNICAL RESEARCH, DEVELOPMENT EXAMINED

Promising Scientific Advances Reviewed

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 2, Feb 80 pp 36-42

[Article by Yu. Bokserman, deputy chairman of the State Expert Examining Commission of USSR Gosplan: "Scientific-Technical Progress and Production Reserves"]

[Text] The system of measures worked out in the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Improving Planning and Strengthening the Influence of the Economic Mechanism on Raising Production Efficiency and Work Quality" is a logical consequence of party economic policy in recent years. In the current phase of development of our economy when plans are being developed for the 11th Five-Year Plan and the more remote future, it is crucial to be constantly alert to pick out new, large-scale achievements of scientific-technical progress whose broad introduction will permit major increases in the efficiency of public production. It is important in this, as pointed out in the Accountability Report of L. I. Brezhnev at the 24th CPSU Congress, "to combine closely the achievements of the scientific-technical revolution and the advantages of the socialist economic system, and to develop more broadly the natural, inherent in socialism, forms of uniting science and production."[1]

During the 10th Five-Year Plan many indicators of the technical-economic level of production in sectors of the economy were improved. The proportion of output in the highest quality category rose. In the first three years of the 10th Five-Year Plan the electric energy sector reduced the expenditure of fuel per kilowatt-hour delivered by almost nine grams, which made it possible to save more than 8.5 million tons of standard fuel (compared with 1975 norms). The specific expenditure went down even further in 1979.

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[1] "Materialy XXIV S"yezda KPSS" [Materials of the 24th CPSU Congress], Moscow, Politizdat, 1974, p 57.

In the period from 1976 to 1978 more than 10,500 new highly efficient machines, pieces of equipment, instruments, and design materials were brought into production, which surpasses the level of the corresponding period in the 9th Five-Year Plan.

Significant qualitative changes were made in the gas industry through broad introduction of new machinery. The extraction of gas from wells with large-diameter operating stems (more than 150 millimeters) reached almost 135 billion cubic meters in 1978, twice as much as in 1975. This made it possible to increase well yield 1.5-2 times and at the same time secure a significant reduction in capital investment to build up gas fields and accelerate development of the unique gas deposits of Western Siberia. According to preliminary calculations, gas extraction per employee in 1979 reached almost 24 million cubic meters as a result of improving the technical level of exploitation of gas deposits; this compares to 18 million cubic meters per worker in 1975.

The level of mechanization in the construction of trunk gas and petroleum pipelines has risen sharply. Organizations of the Ministry of Construction of Petroleum and Gas Industry Enterprises and related ministries developed and introduced a set of machines and mechanisms to build these facilities. Broad use of these sets of equipment, above all in the difficult natural conditions of the northern regions of Tyumenskaya Oblast, at least doubled the pace of construction of trunk pipelines compared to the level attained in the 9th Five-Year Plan.

The extraction of petroleum at automated fields in the oil industry rose from 70.7 percent in 1975 to almost 83 percent in 1979; time expenditures to drill producing wells were reduced.

However, despite significant positive results from the introduction of new technological processes, machinery, equipment, and materials in the national economy, the technical-economic level of production has not reached the indexes envisioned by the 10th Five-Year Plan. The development and incorporation of new machinery has slowed down in recent years. New technical developments in some sectors of machine building lagged behind industrial needs; chemical and petroleum machine building are examples. The technical level of certain types of machines and instruments is lower than the best world models. In capital construction most of the increase in production volume is being achieved by building new enterprises instead of maximum use of capacities created earlier. About one-third of new production capacities being introduced are behind schedule and many operating enterprises have a low shift coefficient of equipment work. The percentage of manual labor in economic sectors is dropping slowly, which causes a greater scarcity of labor.

The exceptional importance of the fuel-energy complex is common knowledge. It is the foundation of the national economy. The CPSU Central Committee and USSR Council of Ministers devote considerable attention to building the country's energy potential. In the last 15 years fuel extraction has increased 2.3 times, including 2.9 times for petroleum, 4.4 times for gas, and 1.4 times for coal. The eastern regions play a special part in these successes, as was observed in the report of A. P. Kirilenko, member of the Politburo of the CPSU Central Committee and secretary of the CPSU Central Committee, at the ceremonial meeting on the occasion of the 62nd anniversary of the Great October Revolution: "We are developing new mineral deposits and building large territorial production complexes. Siberia and the Far East have begun making a greater contribution to the national economy. These regions already provide all or almost all of the growth in extraction of petroleum and gas condensate, coal, and gas and a significant part of electricity production. The vision of the great Lomonosov, who said that the might of Russia would 'be augmented by Siberia,' is coming true."[2]

The national economy's need for fuel continues to grow, and the rate of economic growth will depend on continued development of the fuel sectors. For this reason, as L. I. Brezhnev observed in his talk at the November 1979 Plenum of the CPSU Central Committee, the entire set of energy problems must be thought through carefully. "With respect to the 1980's," Leonid Il'ich said, "the challenge is to improve the fuel-energy balance of the country significantly, first of all to reduce the proportion of oil used as fuel for electric power plants. Is this realistic? Our calculations indicate that it is entirely realistic.

"The first thing we must do is to move even more determinedly to increase the rate of extraction of gas, especially in Western Siberia, and see that fuel oil is replaced by gas on a large scale. In the second place, we must develop atomic energy more rapidly."[3]

The State Expert Examining Commission of USSR Gosplan reviewed the important problem of oil and ways to substitute Tyumen' gas for mazut oil in detail. The commission's recommendations cover the regions of the Urals and the Volga that are relatively close to the northern deposits of Tyumenskaya Oblast; their electric power plants burn tens of millions of tons of fuel oil. Replacement of this oil with gas will make it possible to increase the volume of production of light petroleum products, which will require construction of large installations for deep petroleum refining. This national economic challenge, which promises a great impact, must be met in the near future. This will permit a sharp reduction in the use of oil, a precious natural raw material, as fuel. It should be considered that conditions of fuel extraction will become much more difficult in the future. The extraction of petroleum and gas at many deposits in the European USSR will gradually decrease, and the national economy's demand for these types of resources will be satisfied by development of new deposits under the complex conditions of Western Siberia, far away from the principal consumers. In addition, it must be realized that fuel reserves are not unlimited, so the primary measures of scientific-technical progress should aim at insuring more efficient, comprehensive use of mineral deposits, fuel economy, and the search for new types of energy.

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[2] PRAVDA 7 November 1979.

[3] PRAVDA 28 November 1979.

What are the principal characteristics of the further development of our country's fuel-energy complex? The extraction of coal and gas and electricity production at atomic and hydropower plants for the purpose of saving mineral fuel are to increase significantly in the near future. The gas industry will develop with particular intensity, quickly becoming a key sector of the national economy.

Organizations of the ministries of the Gas Industry and Construction of Petroleum and Gas Industry Enterprises have done a great deal to fulfill the assignments of the 10th Five-Year Plan. Gas extraction will reach 435 billion cubic meters in 1980, the maximum level established by the 25th CPSU Congress. The high rate of growth in gas extraction is planned to continue. Under the complex mining geological and natural conditions of the northern regions of Western Siberia, primarily Tyumenskaya Oblast, gas extraction is to be doubled in the 11th Five-Year Plan. In this, as A. N. Kosygin, Chairman of the USSR Council of Ministers, observed, "One of the key scientific-technical problems is moving electricity and fuel great distances from the eastern regions to the European part of the country. New prospects for pipeline transportation are opening up thanks to the use of multilayered pipe that withstands high pressure. Increasing the working pressure from 75 to 100 atmospheres will increase the productivity of gas pipelines 30 percent, and raising pressure to 120 atmospheres with cooling will almost double it."[4]

Production of multilayered pipe has now begun in an experimental shop at the Khartsyzsk Pipe Plant and an experimental gas pipeline section is being built in the Ukraine to work out construction technology and study operating conditions. Construction of an even longer experimental gas pipeline in the northern part of Tyumenskaya Oblast will begin in 1980. At the same time, steps must be taken to bring construction back on schedule at the country's first industrial shop to produce multilayered pipe at the Vyksa Metallurgical Plant.

The petroleum industry faces major steps to raise the efficiency of work in the sector, involving the entry of many older regions into the period of decreasing extraction, the necessity of developing comparatively small (in terms of reserves) deposits quickly, increasing oil recovery from pools, and performing a significant amount of drilling on exploratory and producing wells. Under such conditions timely fulfillment of the program of scientific-technical projects is especially important.

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[4] PLANOVOYE KHOZYAYSTVO 1979, No. 7, p 9.

Developing new types of what are called filled polymer materials and devising articles made of them is a major new problem whose solution will help save oil, a valuable raw material. The new production technology for these materials has been developed by scientists of the Academy of Sciences USSR directed by Academician N. S. Yenikolopov.

To save traditional energy resources and reduce transportation costs it is wise to make broad use of renewable energy sources in the national economy. This applies first of all to geothermal waters. Predicted resources of geothermal waters at depths down to 3,000 meters are, according to the figures of the USSR Ministry of Geology,25 million cubic meters a day (mineralization of 50 grams per liter and temperature of 200 degrees C), which is the equivalent of about 50 million tons of standard fuel a year. There are much greater reserves of thermal energy deeper down. At the present time, however, thermal waters are used on an insignificant scale to supply heat to populated points, produce electricity, and support hothouses, even though underground heat is an economically advantageous and ecologically clean type of fuel.

Geothermal energy has been used most extensively in Dagestanskaya ASSR, where heat supply to Makhachkala, Izberbash, Kizlyar, and other cities and populated points has been organized on this basis and a large hothouse system has been constructed.

The decree adopted by USSR Gosplan in 1979 envisions measures to organize better use of thermal waters in various parts of the country, the drilling of deep wells at the Tarumovskoye deposit in Dagestan, and working out the technical and economic substantiation for construction of a thermal power plant there.

The State Expert Examining Commission recently reviewed the problem of extracting rare metals from thermal waters. It was recommended that technical-economic substantiation be developed for the construction of the experimental industrial installation proposed for this purpose.

The USSR Gosplan decree envisions that the divisions of energy, geology, oil and gas industry, nonferrous metallurgy, agriculture, and science and technology together with the corresponding ministries and Union republics will develop top priority measures to use renewable energy sources in the national economy. In 1980 organizations of the USSR Ministry of Geology and Ministry of the Gas Industry should drill 140,000 meters of wells for thermal water, compile technical-economic substantiation for the construction of geothermal power plants in Dagestanskaya ASSR and Kamchatskaya Oblast and an experimental industrial solar power plant, construction of a set of wind-powered power plants, and organization of broader use of thermal water in agriculture.

RSFSR Gosplan and the USSR ministries and departments should give these problems their serious attention.

Agriculture also has great opportunities to improve production efficiency. We will discuss a few of them. In late 1979 the State Expert Examining Commission made recommendations on preservation of fruit and vegetables. Work in this field is being done in Moldavia, Belorussia, the Ukraine, Leningrad, Chelyabinsk, and other places where the new, so-called electron-ion technology (EIT) has been introduced.

In Strashenskiy Rayon of Moldavia a device to produce ozone for treating fruit has been installed at a large refrigeration plant. From the fall of 1978 until May 1979 they stored 470 tons of apples there in two refrigeration chambers, one with ozone and the other without. The rate of preservation of apples was 93.3 percent in the room without ozone and 98.2 percent in the ozone-treated room, which demonstrates convincingly the superiority of the new method. Projects on long-term storage of mazzard and regular cherries and apples harvested in 1979 in Moldavia also confirmed its high efficiency. Mazzard cherries stored for 40 days in an ozone-treated room at a temperature of 0.5-1 degrees C and at higher temperatures (10-12 degrees C) preserved all their qualities and there were virtually no losses. After another 40 days losses were minimal. This is the first time such excellent results have been obtained in our country or abroad. The test showed the great effectiveness of ozone and aeroions.

Moldavian SSR Gosplan, Moldplodoovoshchprom [Moldavian Fruit and Vegetable Industry Association], and the republic Academy of Sciences initiated broad experiments on the new method of preserving and transporting fruits and vegetables. In 1978 300 tons of fruit and vegetables were transported from Moldavia to Moscow and Minsk. It was established as a result of the experiment that hauling produce using EIT with a temperature of 18-22 degrees C in the bed of the truck produces the same result as hauling refrigerated produce.

In 1979 the test shipments of fruit continued. Fruit treated with ozone was transported in railroad cars (refrigeration and conventional cars) over great distances, to Barnaul, Biysk, Arkhangel'sk, Minsk, and Moscow, for the first time. The fruit was treated with ozone only at the loading station (Strasheny), with no supplementary treatment en route, unlike the procedure with truck shipment.

Here is one more example. Refrigerator ships of the Chapayev type are using simple ozone units very effectively to transport peaches, bananas, vegetables, onions, meat, eggs, and fish by water. The ozone prevents bananas and peaches from ripening prematurely en route and from spoiling, even when shipped for large distances. Studies and tests made by the Black Sea Central Experimental Design Bureau of the USSR Ministry of the Maritime Fleet have demonstrated that peach losses when treated by EIT are only one-fourth to one-fifth of losses in control batches.

The Leningrad Institute of Soviet Trade imeni F. Engels received interesting results on storage of 1,000 tons of cabbage. The production of standard cabbage from ozonized chambers was 19.7 percent higher than from the control rooms. The cabbage was tender and succulent. After many years of research scientists at this institute have reached the following conclusion: "Ozone treatment of cabbage is an effective storage method and should be introduced in production." Instructions on ozone treatment of potatoes and cabbage for storage have been reconciled with the USSR Ministry of Health and are prepared for ratification. In 1979, following a decision of the Leningrad City Committee of the CPSU, several thousand tons of potatoes and cabbage were put in storage using ozone. The Leningrad Ritm Science-Production Association has begun to produce ozone units.

The Chelyabinsk Institute of Mechanization and Electrification of Agriculture of the USSR Ministry of Agriculture has worked with EIT-treated seed for many years. The institute has had a special EIT laboratory for 10 years now. The experiments made there and tested at kolkhoz and sovkhoz fields in several oblasts show that EIT treatment of seed improves the planting qualities of the seed and potato tubers, raises the grain yield by 1-2.5 quintals per hectare and potato yield by 25-60 quintals per hectare, with a decrease in the rate of crop disease and six percent better storage rate for potato tubers.

Accumulated know-how from experiments and research proves that this new technology for storing fruit and vegetables and treating seed has a great future.

Interesting projects are underway in Moldavia and Uzbekistan on the use of a growth preparation in raising tomatoes and grapes. The preparation is gibberellin, and it allows purposeful control of the vital physiological processes of plants. It can be obtained artificially, by microbiological or chemical synthesis. With synthesis either the structure of the natural substances contained in the plant tissues is completely reproduced or modifications of them are created, often with greater biological activity than the natural compounds.

Growth regulators and inhibitors can be used to stimulate or retard particular stages in the development of plants and thus accelerate the physiological processes of maturation, increase yield and the content of valuable substances in food and industrial crops (grains, fruits, vegetables, sugar beets, cotton, grapes, and the like), and control the processes of photosynthesis, flowering, and fruit-bearing. The application of various types of plant growth regulators may become another major source for raising the yield of agricultural crops and promote optimal use of the beneficial potential of the plants.

Growth regulators are particularly effective when plant needs for nutrients (microelements and mineral fertilizers) are fully satisfied.

Gibberellin has been used to accelerate tomato growth and increase yield since 1976 in Slabodzeyskiy Rayon of Moldavia. Table 1 below shows the results of this experiment.

Table 1

Test Year	Variety	Yield in Plots, q/ha		Yield/Grain		Growth in Income/ha, rubles
		Test	Control	q/ha	%	
1976	Utro	786	439	347	79	9,716
1977	Utro	414.2	304	110.2	36	3,290
	Nistru	435.6	323	132.6	41	1,326
	Kolokol'chik	480	335	145	43	1,450
1978	Utro	510	359.5	150.5	42	4,515
1979	Utro	953.5	586	367.5	63	11,285

As these figures show, the yield gain in experimental plots ranges from 110 to 367 quintals per hectare, which is 36-79 percent more than on the control plots.

In another part of the country, Uzbekistan, major work has been done on treating certain varieties of seedless grapes with gibberellin. The results of experiments conducted at sovkhozes of the Samarkandskaya Oblast Vineyard and Orchard Sovkhoz Trust in 1976 are shown in Table 2, next page.

It should be observed that the significant increase in yield with gibberellin treatment requires increased use of nutrients and supplementary watering, which increases expenditures per hectare of grapes by roughly 300-350 rubles. At the same time, however, the additional net income is about 1,200 rubles for each treated hectare.

Gibberellin was used on 2,020 hectares of vineyards in Uzbekistan in 1978 and on 3,100 hectares in 1979. The increase in yield was like the 1976 increase. In 1980 plans call for treating 5,500 hectares of vineyards with this preparation. Good results have been obtained with the use of gibberellin for treatment of potatoes in the Ukraine.

This article has summarized the facts on development of progressive new processes and methods by our scientists and specialists.

Table 2

Sovkhoz	Yield, q/ha			
	Treated Area	Untreated Area	Gain in Yield	
			Quintals	%
Bulungur	172	120	52	43.3
imeni F. Bldash	130	82	48	58.5
50 Let Kompartii Uzbekistana	130	85	45	53
imeni Navoi	110	53	57	108
Krasnogvardeyskiy	110	55	55	100
Leninabad	150	95	55	58
imeni Kalinin	135	80	55	70
(Sovkhoz Plant) imeni XXV S"yezda KPSS	168	110	58	53
Total for Trust	138	85	53	62

Introduction of these techniques can produce a significant savings for the national economy. These innovations are spreading slowly, however, running up against departmental and other barriers. Experience shows that many difficulties arise because of problems with the overall system of science, engineering, and production as a result of which the development and incorporation of new equipment and technology drags out over long periods of time.

The managers of the appropriate ministries, departments, associations, and enterprises have a large part to play in eliminating these difficulties. Vigorous activity to take advantage of available, efficient scientific-technical advances can be one way to characterize the work of a manager.

Serious steps need to be taken to increase the working effectiveness of scientific research, planning, and design organizations, who are expected to solve the problems of scientific-technical progress on a high level. Certain ministries and departments still have not achieved comprehensive solutions to the key scientific and technical problems facing the sector and the national economy as a whole. Sectorial plans do not have target orientations taking into account the main directions of technical progress. Eliminating these shortcomings will make it possible to use available scientific and production-technical potential in our country and more fully.

Joint Gosplan-Academy of Sciences Session

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 2, Feb 80 pp 122-123

[Article by B. Krasnoglazov: "Economic Problems of Accelerating Scientific-Technical Progress"]

[Text] An expanded joint session of the Academy of Sciences USSR's Scientific Council on Economic Problems of Scientific-Technical Progress and the section on economic problems of scientific-technical progress of the USSR Gosplan Council was held in November 1979 and devoted to tasks arising from the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Improving Planning and Strengthening the Impact of the Economic Mechanism on Raising Production Efficiency and Work Quality." Representatives from the Academy of Sciences USSR, the USSR Central Statistical Administration, the State Committee for Inventions and Discoveries, the State Committee for Prices, USSR Gosplan, the State Committee for Science and Technology, ministries, production associations, sectorial scientific research institutes, higher educational institutions, the party and economic press, and CEMA agencies took part in the work of the session.

At the session corresponding member of the Academy of Sciences USSR L. M. Gatovskiy, chairman of the Scientific Council, presented a report entitled "Reserves for Accelerating Scientific-Technical Progress and Raising Its Efficiency" and K. A. Yefimov, chairman of the section of the Council and a division head at USSR Gosplan, presented a report entitled "Improving Planning and Stimulating Introduction of New Technology."

L. M. Gatovskiy analyzed ways to improve the quality and efficiency of new equipment in all its stages, from development to series production. He offered suggestions on how to stimulate the selection and performance of topics of major national economic importance. He recommended ways to guarantee that each new model of equipment meets the requirements of the highest quality category coordinated with economic impact criteria, steps to organize nondepartmental certification of all technical developments with a significant increase in the role of technical specifications with mandatory application of quality certification to technological processes and institution of special procedures for this certification. L. M. Gatovskiy suggested that plans give a fuller picture of the specific demands and characteristics of the conditions under which new machinery will be used in the primary sectors while at the same time substantially raising the level of standardization of assemblies, parts, and technologies. The speaker discussed a number of steps to insure higher economic accountability benefits for highly efficient new machinery beginning with the stages of development and introduction by using, especially in these stages (in conformity with specific features) incentive appraisals and bonuses based on differentiated, progressive annual cost norms and production times and volumes.

The report recommended ways to combine forecasting and planning the national economic impact of new equipment closely with what actually results. He suggested that we change from calculating the national economic impact of new equipment by a formula for estimated costs to planning and achieving this effect in assets actually resulting from technical activities, to the economic accountability form of profit, and ultimately to net profit, which most closely reflects the difference between the calculated expenditures of the new equipment and the basic equipment taken for comparison. This will permit a significant improvement in the reliability of impact data (specifically, it will eliminate double-counting) and intensify the effectiveness of the science-production cycle and the responsibility of all participants for it.

In his talk K. A. Yefimov emphasized that significant changes must take place in the composition and content of the plan for introduction of new equipment following the decree of the CPSU Central Committee and USSR Council of Ministers. He told of the work of USSR Gosplan to improve planning for new machinery and noted the necessity of making ministries, associations, enterprises, and state agencies more accountable for accelerating scientific-technical progress. Standardization agencies, he emphasized, must improve their work to standardize parts, assemblies, and devices, both those produced in this country and imported ones. The Council of USSR Gosplan and its section on scientific-technical progress, K. A. Yefimov said in conclusion, will soon prepare concrete steps to improve methodological instructions on the development of state plans for economic and social development of the USSR.

V. Ye. Astaf'yev (head of an administration in the Ministry of the Electrical Equipment Industry) discussed the issues of accelerating scientific-technical progress in the electrical equipment industry and reported results and certain problems with the experiment that has been underway there for more than 10 years. He related how the sector is working to coordinate the economic impact achieved with concrete indexes of the economic accountability of the enterprises and made a number of suggestions to improve the planning and stimulation of new equipment.

B. P. Zaytsev (bureau chief of the State Committee for Science and Technology) talked about the use of a new index in planning, the economic impact from scientific-technical activities.

M. G. Vasil'yev (chief of an administration of the ministry of the chemical industry) touched on the problems of scientific-technical progress in the chemical industry. He described the scientific-technical potential of the sector, the basic principles and specific features of the sectorial system of planning for science and technology, and made a number of proposals on further concentration of resources to step up scientific-technical progress and coordinate economic accountability indexes with indexes of the development of science and technology.

V. A. Disson (deputy division chief of the State Committee for Science and Technology) gave a detailed presentation of the strong points and drawbacks of the Committee's development of comprehensive target programs for the development of science and technology. He emphasized the urgency of closer coordination of economic issues with social problems and capital construction in plans for new equipment and comprehensive target programs. He devoted considerable attention to the system of indexes of scientific-technical programs, the development of methodological instructions on drawing up the latter, and the role of scientific institutes in this important work.

Professor K. I. Taksir, doctor of economic sciences from the Institute of Economics of the Academy of Sciences USSR, discussed the problems of the formation and development of a regional system to manage scientific-technical progress, the optimal combination of sectorial and territorial planning, and increasing the role of territorial plans, in which plans of scientific-technical progress play an important part. He related experience with solving these problems in Donetskaya, L'vovskaya, Kiev, Zaporozhskaya, Khar'kovskaya, Sverdlovskaya, and Novosibirskaya oblasts and Krasnodarskiy and Krasnoyarskiy krays. K. I. Taksir made a number of suggestions on further improvements in the management of scientific-technical complexes from the sectorial and territorial standpoints.

The session adopted a resolution which recommended that the Scientific Council of the Academy of Sciences USSR, its problem sections and branches, and the section on scientific-technical progress of the USSR Gosplan Council make development of the questions of carrying out the decree of the CPSU Central Committee and USSR Council of Ministers on improving planning and the economic mechanism the foundation of further activities and that they summarize the results of their research and the work of the institute coordinated by the Council and experiments underway and submit scientific reports to USSR Gosplan, the State Committee for Science and Technology, and the Presidium of the Academy of Sciences USSR containing recommendations on improving planning, stimulation, and financing of scientific-technical progress, management of the socioeconomic national economic and economic accountability efficiency of new equipment, improving the management of machine building, and the economic factors involved in raising the quality of new equipment.

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INTRODUCTION OF NEW TECHNOLOGY

ECONOMIC INCENTIVES FOR TECHNICAL PROGRESS OUTLINED

Moscow EKONOMICHESKIYE NAUKI in Russian No 2, Feb 80 pp 96-102

[Article by S. Pirogov, docent and candidate of economic sciences]

[Text] Particular attention is being paid in our country to scientific-technical progress as an exceedingly important means of solving current and long-range problems. In the report address of the CPSU Central Committee to the 25th party congress Comrade L. I. Brezhnev noted: "It is still the most important task to speed up scientific-technical progress ... only on the basis of faster development of science and technology can the ultimate problems of the social revolution be solved--and communist society built."* The party's course toward raising the rates of scientific-technical progress in every way and toward effective use of its advances is based on continuity, creative development and consistent implementation of Lenin's principles of building an economy. The idea of using scientific-technical advances in the country's socioeconomic reorganization and development runs through our history like a red thread from Lenin's "Sketch of the Plan for Scientific and Technical Projects" to our own day.

A considerable acceleration of scientific-technical progress has been achieved in our country over the last two 5-year periods. The list of pieces of technical equipment, which is one of the important indicators of acceleration of scientific-technical progress, expanded by approximately 15,000 designations in the 1966-1975 period alone. In 1978 alone about 4,000 prototypes of new models of machines, equipment, apparatus, instruments and automation devices were built, and more than 1,800 outdated models were withdrawn from production. At industrial enterprises 12,000 sets of mechanized flow lines and automatic production lines have been set up. Series production of 3,500 new industrial products has been organized and begun. All of this has made it possible to raise the social productivity of labor. That has saved the economy the labor of 3.5 million persons. In the industrial sector alone more than 75 percent of the growth of production has been achieved thanks to higher labor productivity. The benefit from introduction of measures coming under the head of new technology during the Ninth Five-Year Plan is estimated at more than 12 billion rubles, and it is assumed that it will rise nearly 1.5-fold on the basis of the results of the 10th Five-Year Plan.

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* "Materialy XXV s"yezda KPSS" [Materials of the 25th CPSU Congress], Moscow, 1976, p 47.

A mighty scientific-technical potential has been built up in the country, offering tremendous opportunities for a surge of the productive forces and a further progress in science and technology. As of 1978 there were 1.3 million staff scientists working in our country's various scientific institutions. We note for sake of comparison that in 1918 the number of scientists was 11,500, in 1940 98,300, in 1965 664,400. Over the last 25 years the number of scientists in our country has increased 7.2-fold, while the number of workers and employees has grown 2.5-fold over the same period, and the population 40 percent. Expenditures for science from the state budget and other sources amounted to 19.3 billion rubles in 1978 (0.3 in 1940 and 6.9 billion rubles in 1965).

Soviet science has gone to the advance outposts in a number of lines of development in mathematics and mechanics, quantum electronics and solid-state physics, nuclear power, chemistry and biology, space exploration and many other fields of science. Correct and timely utilization of this sizable scientific-technical potential will make it possible to substantially increase the rates of growth of the productivity of social labor and the efficiency of capital investments, to reduce the metals intensiveness of production, and to improve other parameters of economic development. Over the period 1981-1990 metals intensiveness of equipment can be reduced by one-third, and that of construction and installation work 15-20 percent. Yields in cropping and the productivity of livestock raising can be boosted 20-30 percent, and losses in agriculture can be approximately halved.

Performance of the formidable socioeconomic tasks of the 11th and subsequent 5-year plans necessitates further development of science and technology and vigorous practical utilization of the results of this development. Faster scientific-technical progress should ensure major progressive shifts in the structure of the economy and in turn a rise in the efficiency of social production. If the scientific-technical potential is to be fully utilized and continuously augmented, there must be constant improvement in management of the development of science and technology and application of scientific-technical advances. Comrade L. I. Brezhnev spoke about this at the 25th CPSU Congress: "The revolution in science and technology necessitates major changes in the style and methods of economic activity.... It necessitates improvement of planning and economic incentives so as to create conditions which are fully conducive to the fastest progress of ideas over the entire chain--from invention to large-scale production and which erect a dependable economic barrier to manufacture of outdated products.... Throughout the entire construction of our economy there is probably no task today that is more urgent and crucial."* This principle has been given concrete embodiment in the package of measures envisaged by the decree adopted by the CPSU Central Committee and USSR Council of Ministers on 12 July 1979 and entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Production Efficiency and the Quality of Performance."

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* Ibid., pp 48-49.

What Is New in Planning Scientific-Technical Progress

The decree assigns a particular place to measures which are to improve the planning of scientific-technical progress, which is the basis for conduct of a unified scientific-technical policy, whose purpose it is to ensure consistency among all the lines of development of science and technology, maintenance of the necessary proportions among the individual components of scientific-technical progress and optimum development of scientific potential as an ultimate result. It is important to emphasize that the planning of scientific-technical progress is an organic and integral part of national economic planning. Among the most important measures to improve all planning work in the country, then, the decree envisaged that in the drafting of plans for economic and social development faster application of scientific-technical advances aimed at raising the growth rates of production of social labor and at improvement of product quality would be guaranteed.

The basic idea of improving the planning of scientific-technical progress lies in directing all the might of science and technology toward attainment of the final national economic results. It is an important peculiarity of the measures envisaged by the decree that they have embodied and concentrated in themselves everything that has been constructed in the experience of a number of sectors and industries of the economy acquired during the economic experiment which began in 1969 in the electrical equipment industry. The following are among the main lines for improvement of the planning of scientific-technical progress:

i. improvement of the methods, organization and procedure of planning work;

ii. improvement of the content and special-purpose orientation of plans for science and technology;

iii. more dovetailing of plans, their closer linkage with other sections of plans for economic and social development;

iv. alteration of the system of indicators;

v. improvement of the economic soundness of plans for science and technology;

vi. improvement of the stability and internal consistency of plans.

In setting forth the content of these various directions of improvement, we should note first of all enhancement of the role of planning methods based on the special-purpose program. This is dictated by the peculiarities of scientific-technical and socioeconomic development in the present stage. Even with the present-day vigorous and thorough interaction of science and production, the length of "research--production" processes extends beyond the limits of a period of 15 or 20 years. This makes it necessary to extend the horizons of planning considerably. The close interweave of scientific-technical and socioeconomic processes imposes higher requirements as to the dovetailing of planning. In that context it is becoming especially important to draft long-range special-purpose programs for development of science and technology.

Comprehensive scientific-technical programs serving as the framework for this approach do not stand in opposition to the plan, but are a form of planning, that form which best corresponds to the complex nature of scientific-technical progress. Beginning with the 10th Five-Year Plan ever more widespread use is being made of the special-purpose program as a method of planning scientific-technical progress. For the purpose of interrelated solution of the most urgent problems of the national economy the plan covering the 1976-1980 period stated basic assignments for solving 200 of the most important scientific-technical problems, oriented above all toward rapid utilization of the advances of science and fundamentally new technical solutions. Use of methods based on the special-purpose program makes the planning of scientific-technical progress more comprehensive, i.e., makes it possible to link together all the measures and stages of projects--from research to obtaining the final results of production, and at the same time to anticipate mutually adjusted deadlines, those who will be responsible for performance, and timely availability of the necessary resources.

It is especially important to make planning more comprehensive, since the time lag between different stages of projects, lack of coordination of the actions of those carrying them out, and tardy availability of the necessary resources result in a substantially lower rate of scientific-technical progress and a drop in its efficiency.

The Comprehensive Program of Scientific-Technical Progress and Its Socioeconomic Consequences has become the summary form of planning by program. This program is a new form for drafting as a plan the prospective development of the national economy on the basis of advances of science and technology. In accordance with the decree of the CPSU Central Committee and USSR Council of Ministers adopted 12 July 1979 a new procedure has been established for compiling multiannual plans of economic and social development. The drafting of the Comprehensive Program is regarded as one of the most important directions for improving planning work, and it is being introduced as a mandatory planning form. The Comprehensive Program is drafted for a 20-year period (broken down into 5-year periods) and is submitted to the USSR Council of Ministers and USSR Gosplan no later than 2 years before commencement of each successive 5-year period. Every 5 years the necessary revisions are made in the program, and it is drafted for a new 5-year period. The Comprehensive Program will be used on a scale that is broadening. In particular, comprehensive programs of scientific-technical progress and its socioeconomic consequences are beginning to be drafted for particular regions. Adjusting the Comprehensive Program to the measures of international cooperation in the domain of scientific-technical progress is on the agenda.

In actuality the practical implementation of the decree will considerably alter the content of plans for science and technology and their orientation as to specific purposes. The urgency of this change is very great, since development of science and technology has not uncommonly been self-sufficient in nature and has not been oriented as it should have been toward attainment of the final results of the national economy. Ministries, departments and associations have often preferred to include in the plan for new technology those measures which are easy and convenient to perform, but by no means those which have the greatest impact toward raising the technical level of production and products produced and ultimately toward a rise of economic efficiency and social effectiveness. This practice has resulted in triviality of R&D projects, incomplete use of scientific-technical potential and consequently failure to derive the full economic benefit in the national economy. For example, the average economic benefit for the 600,000 measures for new technology annually adopted has been slightly more than 6,000 rubles. If we take into account that these measures involve rather sizable expenditures, it becomes clear that at the present rates of economic growth and with the present scale of socioeconomic tasks to be performed we can hardly be satisfied with this level of efficiency.

In accordance with the decree, assignments for creating new technology and putting it into production are to become an organic part of production plans and should effectively raise the technical level of production and in turn its efficiency. The experience of the electrical equipment industry and a number of other industries convincingly shows the need for and realism of the special-purpose orientation of plans for science and technology toward the final results and of making them as to their content an organic part of plans for economic and social development. It can serve as a supporting argument that the economic benefit to the national economy from performance of scientific-technical measures in the electrical equipment industry increased 5.2-fold between 1968 and 1978.

The content and orientation as to purpose of plans for science and technology should be determined by the overall goals and tasks of the country's economic and social development, and the result of scientific-technical progress should be described not in terms of tons or units of improved new machines or products, but in terms of constructive changes in the dynamic behavior of labor productivity, production efficiency, product quality, and, in the final analysis, in the level of attainment of the economic and social goals which have been set.

Improvement of the system of indicators used in planning scientific-technical progress should play an important role in solving this problem. The decree calls for expansion of the number of planning indicators assigned. In 5-year plans for economic and social development industrial ministries, associations and enterprises will be assigned basic targets for fulfillment of scientific-technical programs; for developing, putting into production and applying highly efficient new manufacturing processes and products, with separate indication of those pertaining to enterprises and facilities newly put into operation; basic indicators of the technical level of production and of the most important products produced; the economic benefit from performance of scientific-technical measures; and rates used in forming the unified fund for development of science and technology (for ministries). This kind of system of assigned indicators ought to change the practice of planning and executing numerous but disassociated assignments for developing, putting into production and applying new technology.* What is fundamentally new in this area is making the benefit to the national economy a planning indicator that is assigned. The basis for evaluation would thus be the ultimate economic benefit and not fulfillment of the individual project. Assessment of the economic performance of an association (enterprise) and the corresponding incentives would be made directly dependent on the growth of the benefit to the national economy resulting from accomplishment of scientific-technical progress rather than on the number of scientific-technical measures performed and the total number of pieces of equipment applied.

Measures To Strengthen Economic Incentives for Speeding Up Scientific-Technical Progress. Economic Efficiency and Social Effectiveness of New Technology

Inclusion in the plan of the economic benefit from performance of scientific-technical measures as an assigned indicator will tend to strengthen the economic soundness of plans for scientific-technical progress. Until now by no means every scientific-technical measure included in the plan had a sound economic basis, even the very important and large ones. The criterion used in selecting research and development projects to be included in the plan was not clearly defined. Planning the economic benefit unambiguously points toward using the benefit of the measure to the national economy the criterion of the advisability of including the scientific-technical measure in the plan.

Improvement of the system of indicators used in planning scientific-technical progress calls for a great deal of work on methods and organization. For example, the basis for computing the economic benefit from new technology is now supplied by the Method (Basic Principles) of Determining the Economic Efficiency of Using New Technology, Inventions and Innovative Proposals in the National Economy. But in using the economic benefit from new technology as one of the principal cost-accounting indicators we must determine not only the projected or planned benefit, but also the actual benefit and register its magnitude in the relevant bookkeeping and statistical reports. But the actual benefit is manifested only where the product is used, and at present we do not have the necessary measurement and recording of the benefit there. Serious demands are being put on the theory and practice of computing the efficiency of measures embodying scientific-technical progress in connection with the enhanced role of the social aspects of planning. At present it is not as a rule possible to limit oneself solely to economic assessments of these measures--one needs to determine the overall socioeconomic effectiveness. At the same time the methodology and method of evaluating socioeconomic effectiveness still do not meet the requirements of practice to the necessary degree.

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* In accordance with the Methodological Guidelines for Compiling State Plans for Development of the USSR National Economy, 5-year plans consist of 11 different sections containing assignments in the domain of scientific-technical progress.

Great importance is attributed to qualitative indicators. In particular, adoption of the indicator of the technical level of production places qualitative improvement of the technical plant of enterprises and progressive shifts in the proportional composition of equipment and improvement of its use under effective scrutiny, which will undoubtedly show up in improvement of the qualitative characteristics of products produced. This is especially urgent since up until now a sizable share of new products put into production do not meet present-day requirements. Not uncommonly models of new equipment and processes are designed which are patently worse than what is already available. At present approximately 70 percent of the new products produced meet the best world standards, and after certification this percentage is still lower. Indicators of the technical level of the development of production were applied even in the 10th Five-Year Plan, but the benefit from their use was still not high. First of all, their use must be backed up with important organizational measures, and second, they can yield a benefit only in interaction with other indicators. Now the State Committee of the USSR Council of Ministers for Science and Technology will join ministries in making regular evaluations of the level of the pieces of industrial equipment produced. Mandatory extradepartmental expert evaluation of technical-and-economic indicators of particularly important new products and manufacturing processes is being adopted in all stages from the technical assignments to the final results. The head organizations are being designated to perform state tests of the most important products.

We should note that faster scientific-technical progress depends greatly not only on indicators assigned in plans for economic and social development in the section "Introduction of New Technology," but also on the indicators assigned in other sections. This applies above all to the net output indicator. Adoption of this indicator is expected to eliminate the adverse effect of indicators of gross volume on the acceleration of scientific-technical progress. This impact has been that when the performance of associations and enterprises was assessed in terms of indicators of gross volume, it proved disadvantageous for them to produce new technology and products of more lightweight construction. For example, the Volzhskiy Pipe Plant organized the production of new higher-quality pipe which was

25 percent lighter, but at the same time the price was lowered, and when the same amount of pipe of improved quality was produced, the plant's economic indicators deteriorated: the volume of sales dropped 7 percent and labor productivity fell off 15 percent. Adoption of the net output indicator will eliminate the influence of different rates of profitability of products on formation of the list of products produced. Production of progressive new equipment will not have an adverse effect on indicators of enterprise performance. The net output indicator is being used at many enterprises. The experiment in which it has been used has yielded good results. For instance, in the Ministry of Heavy and Transport Machinebuilding, where an experiment using the net output indicator was conducted, labor productivity rose 5.5 percent in 1978. At enterprises in Moscow's construction industry the number of new types of reinforced-concrete products increased from 350 in 1975 to 710 in 1978 when normative net output was introduced. The materials intensiveness of products dropped approximately 2 percent, which meant a saving of 64,000 tons of cement and 9,000 tons of metal.

Constructive shifts in scientific-technical development should result from measures to improve the stability and internal consistency of plans of economic and social development. Making the 5-year plan the principal planning form, making the principal standards stable over that period, and enhancement of the role of multiannual planning and long-range forecasting will unquestionably help to speed up scientific-technical progress and give enterprise collectives stronger motivation to apply the advances of science and technology. The point is that it is practically impossible to solve scientific-technical problems that have any significance from the standpoint of the efficiency of the national economy within the limits of the annual planning period. The length of the "research--production" processes and the distance in time between the moment when the economic benefit is derived and the commencement of scientific-technical projects objectively require that planning horizons be extended and that economic standards be made stable over a sufficiently long period of time. This is needed above all so as not to disrupt the vigorous and effective relation between outlays for scientific-technical progress and its results.* Otherwise management of these processes will prove ineffective. In the framework of the 5-year period this relationship can by and large be ensured for scientific-technical developments, which are predominant in the industrial sector, though an ever more sizable portion of the projects are beginning to extend beyond the limits of 5 years.

Building of physical and financial reserves and reserve productive capacity will help to improve the stability and internal consistency of plans for scientific-technical development. One of the most important peculiarities of the development of science and technology is their probabilistic nature. What this means is that in compiling plans it is not possible to foresee all the work items that will arise in the process of research and development. At present, for example, unforeseen needs of scientific institutions resulting from the probabilistic nature of research and development projects amount to approximately 30 percent of the resources they consume. This has compelled scientific research institutions to build up reserves not envisaged by the plan in order to cover needs arising because of unforeseen work. This practice has resulted in a covert redistribution of resources and ultimately in the instability of plans. The reserves established on a planned basis will promote optimum combination of the stability and flexibility of plans for science and technology.

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* The practice of planning "against the level attained," the annual planning of scientific-technical progress, frequent adjustments of planned assignments, and the instability of standards are among the economic conditions which weaken that correlation.

Economic incentives are becoming especially important to speeding up scientific-technical progress. As an important component of planned management of the development of science and technology economic incentives are inseparably bound up with planning, financing, cost accounting and other instruments in the economic mechanism. Strengthening the orientation of scientific-technical progress toward the final results of the national economy will have the result that associations (enterprises) will be unable to attain high indicators in their economic performance, and accordingly in economic incentives, without rapid and effective utilization of scientific-technical advances. This possibility and the interrelatedness of the effect of all the economic levers and incentives are expected to create the most favorable possible economic conditions for rapid and effective utilization of the results of research and development in production. The effectiveness of incentives for scientific-technical progress is rising considerably thanks to establishment of stable long-term economic standards related to the formation of material incentive funds, the distribution of profit and formation of the wage fund. This will make it possible to establish a direct relation between the rise in the efficiency of new technology and economic incentives and to arrive at a better combination of centralized management of scientific-technical progress with expanded initiative and independence on the part of cost-accounting entities.

Provision is being made to enhance the stimulative role of bonus systems in speeding up scientific-technical progress. This is very important, for at the present time the incentives mostly encourage the development of production by virtue of extensive factors. The amount of bonuses, for example, received by personnel of associations and enterprises for utilizing advances of science and technology represents only 1.6-1.8 percent of all awards paid for overfulfillment of planned production targets.

Budget financing and credit financing have an important role among the economic levers and incentives for speeding up scientific-technical progress. Development of science and technology is at present a sphere in which sizable amounts of financial resources from various sources are being applied. For instance, outlays for science increased more than 2.5-fold between 1965 and 1975, and the share of these expenditures in the national income was nearly 5 percent. It is important to note that a sizable portion of outlays to develop science and technology has in the recent past come from the budget and centralized capital investments furnished on a grant basis. This type of financing has not given associations (enterprises) the requisite motivation to spend the funds allocated to them effectively, since their allocation did not depend on the effectiveness of the measures being financed. Funds on the other hand coming from cost-accounting sources of financing (credit, the "own" funds of associations and enterprises, etc.) perform an incentive function, since the results of economic performance and correspondingly the level of incentives depend on their effective use. Credits, moreover, must be repaid out of the profit derived from the measures financed with the credit and must be paid for in the form of interest on the loan, which compels the borrowers to obtain maximum yield from the credit funds.

Measures to improve financing in recent years have been aimed to a considerable extent at enhancing the role of cost-accounting sources of funds.

Since 1969 work has been done in the electrical equipment industry (and later in other industries) on experimental verification of a new system of financing scientific-technical development as an organic part of the overall mechanism for management of scientific-technical progress in the industry. It is the peculiarity of this system that the subject of financial planning is not the organization, but the scientific-research topic, and this makes it possible to concentrate scientific personnel and resources on the important thing. The period of time necessary to complete the topic is taken as the planning period. The planning and financing of R&D projects are based on the principle of continuity beginning with the exploratory stages and ending with application of developments to production. This makes it possible in a single plan to link together all organizations involved which are working on a particular problem and, especially important, to ensure a closer correlation of the various sections of the plan with the financial plan.

The system of continuous planning of the creation and application of new technology is based on intraministerial job orders, which have the status of business contracts. The customers are the main administrations of the ministry representing entire industries. The projects are financed by the customers from the ministry's centralized fund for development of science and technology by making an earmarked assignment for each topic through the lead organization (enterprise) responsible for fulfillment of assignments for the topic as a whole.

In the new procedure for financing research and development projects two sources of financing are adopted instead of several different ones: the unified centralized fund for development of science and technology of the industry or sector, which is one, and funds obtained from outside under business contracts for fulfillment of orders, which is the other.

Funds both for scientific research purposes and also for putting new technology into production are concentrated in the unified fund for development of science and technology, which creates conditions favorable to comprehensive planning of the entire "science--production" cycle. The experience of a number of industries in which a unified fund has been created has shown that the effectiveness of funds used to finance scientific-technical progress has risen considerably. Industries have obtained a mobile source of funds, one that makes it possible within optimum periods of time to draft and carry out the most important special-purpose programs for assimilation of new technology--from scientific exploration to industrial application. It is important to note that the ministries have altogether given up appropriations for science and technology from the state budget, and they are building up the unified fund with deductions from the profit of enterprises and with funds obtained from customers under contract. The decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979 called for formation of a unified fund for development of science and technology in all industrial ministries.

In accordance with the decree, the Methods Guidelines on Procedure for Formation and Use of the Unified Fund for Development of Science and Technology have been drafted and were approved on 11 September 1979; they define the purpose of this fund and the procedure governing its formation and use. The fund for development of science and technology is being created in industrial ministries and departments to finance scientific research, experimental design, and production engineering projects and to reimburse costs related to developing and putting into production new products and manufacturing processes, to adoption of a scientific management, and also to financing additional outlays to improve product quality and higher costs in the first years of production of a new product. The unified fund is built up with deductions from planned profit at a rate set down in the 5-year plan (with a breakdown by years) in percentages of net output (normative) or, in certain industries--of commodity output.

Credit instruments are taking on ever greater importance in the management of scientific-technical progress. The decree calls for gradual transition of scientific-research, project planning and design, and production engineering organizations to the system of settlement for a project that has been entirely completed and accepted by the customer instead of stage-by-stage payment for projects. In this form of settlement the customer pays for the project only at the point when he can assess the results obtained. Consequently, the expenses of organizations performing projects are covered until the planned date of delivery with bank credit up to the limit of the funds the customer has set aside in connection with the transition to settlement without intermediate payments.

The credit will be extended to ministries and departments for projects financed from the unified fund for development of science and technology when there is a time lag between the flow of funds into that fund and the size of expenditures from it. Scientific-production and production associations will obtain credit to perform highly effective measures provided they perform them within periods shorter than planned. Credit for the highly effective scientific-technical measures not envisaged by the plan will be extended to associations and enterprises under the guarantee of ministries, departments or all-union (republic) industrial associations. The credit will be returned and interest paid within 2 years out of the unified fund for development of science and technology.

It is important to emphasize that effective introduction and operation of the financial mechanism envisaged by the decree impose high requirements on the work of economic and financial staff services of associations (enterprises) and give them greater responsibility for performance of the intended measures.

Great importance is being attributed to strengthening incentives for improvement of product quality and for speeding up renewal of the assortment of products produced. An important measure the decree envisages along these lines is differentiation of the size of premiums applied to the wholesale price for products bearing the Quality Emblem (as a function of the annual economic benefit and technical level of the products). The premiums are multiplied by a factor of 1.5 for a product that embodies discoveries and inventions. Different periods of validity of the premiums (4-5 years) are set as a function of the product's complexity. The size of the premiums and their period of validity are reduced to half when a product is recertified and awarded the Quality Emblem if the characteristics with respect to quality and efficiency have not been improved. Discounts are to be applied to the wholesale price on products in the second-quality category or those which have not been certified within the specified period. A procedure is being introduced for planning and assessing fulfillment of the plan for products bearing the Quality Emblem and products classified in the second-quality category in which the premiums and discounts are not taken into account in the plan, but they are taken into account in evaluation of plan fulfillment.

As associations and enterprises make the transition to the manufacture of new products, they can obtain credit to carry out highly effective measures beyond the limit on capital investments to produce new products and improve the quality of products produced provided the expenditures pay for themselves and the loan is returned within a period of 2 years out of the additional profit derived.

The Cost-Accounting System for Organizing the Work of Scientific Research Organizations

A system of measures aimed at strengthening and developing cost accounting takes up a particular place in the decree. The use of cost accounting in the sphere of scientific-technical progress presupposes on the one hand expanded independence of cost-accounting subdivisions in handling questions of development of science and technology, and on the other responsibility to society for the results of their activity. In practice this means that associations (enterprises) must cover their outlays for scientific-technical progress from their own income, i.e., they must pay for themselves and ensure profitability. The level of effectiveness of work to create and apply new technology should have a direct impact on the level of material incentives to encourage the members of the collective of the association (enterprise).

Development of cost-accounting methods of managing scientific-technical progress is possible only if it is inseparably bound up with improvement of the entire system of management--planning, organization and incentives. Organizational restructuring of the system of industrywide management in accordance with the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Certain Measures To Further Improve Management of the Industrial Sector" was an important stage in improving the management of scientific-technical progress, one that revealed the large potential for adopting cost accounting in the sphere of science and technology. The transition to the two- and three-tier system of industrywide management and the creation of associations were prerequisites for speeding up scientific-technical progress and for the rise of production efficiency. But this organizational restructuring must be supplemented and backed up with measures to improve cost-accounting relations and to make economic incentives more effective. For example, in the electrical equipment industry improvement of the management of scientific-technical progress, combined with development of cost accounting, was carried out in the following sequence. First there was a radical organizational restructuring of the industry and of its scientific resources above all. Then a flexible system of planning and financing new technology, guaranteeing continuity in fulfillment of projects "from the idea to application," was introduced. This system necessitated improvement of the methods of financing research and development projects. Financial funds were concentrated in a unified fund for development of science and technology. All these and collateral measures were inseparably bound up with the development of cost accounting, which operates as a unified production and economic mechanism and affords possibilities for flexible maneuvering and for concentration of the scientific and productive potential along the most important lines of scientific-technical progress.

The experience of the electrical equipment industry and of other industries in using the levers of the cost-accounting system in managing scientific-technical progress has yielded good and stable results. By 1979 some 15 industries had converted to this kind of system for planning and stimulating scientific-technical progress. The decree of the CPSU Central Committee and Council of Ministers dated 12 July 1979 calls for completion in 1980 of the conversion of scientific research, project planning, design and production engineering, pilot (experimental) organizations (enterprises), and industrial ministries to the cost-accounting system of organizing work to create, put into production and apply new technology.

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